JUNE, 1933

COTTON

Serving the

TEXTILE INDUSTRIES

JUN 1 1933

How DIXIE *Durene* CONTRIBUTES TO THE SUCCESS OF YOUR MERCHANDISE

Now, more than ever before, Dixie durene contributes definite sales advantages to your numbers. Consumers are showing new interest in wear, but they want both wear and attractive appearance. Dixie durene helps you knit wear into your goods because it is skillfully spun long-staple cotton; and Dixie durene helps add this wear without sacrificing appearance. This because Dixie's controlled processing makes Dixie durene compact and lustrous.

And don't overlook Dixie durene's contribution to your production success. It helps make notable machine-hour and man-hour production records, with definitely decreased seconds because it is both spun and processed under Controlled Manufacture. This means faultless spinning and processing machinery, inspections, re-inspections, and four laboratories constantly protecting Dixie durene's knitter-production efficiency.

Let Dixie durene make its contributions to the sales and production success of all your numbers. Specify it every time.

DIXIE MERCERIZING COMPANY

CHATTANOOGA, TENNESSEE

BOTH?

Yes—we sell both White (natural or bleached) and Colored Cotton Yarns

Franklin Process now means cotton yarns of practically every description, natural bleached or colored.

And the colored yarn can be package dyed or stock dyed. Of course, if customers want to buy just yarn dyeing, we are still prepared to function as custom yarn dyers.

We carry a large stock of the more commonly used counts and qualities of cotton yarns for immediate delivery. Our mill connections enable us to supply other counts and qualities promptly. Our complete line includes a variety of qualities to meet practically every price requirement; also specialties as well as standard items, such as mock twist, ratines and slub yarns. Your inquiries will receive courteous and prompt attention.

FRANKLIN PROCESS CO.

Yarn Merchants and Yarn Dyers. Also M'f'rs of Glazed Yarns and Machines for Dyeing and Bleaching Yarns in the Package Form, Cotton and Wool Raw Stock, Worsted tops and Worsted Yarn on Jackspools and Machines for Soaking Silk.

Main Office and Plant at Providence, R. I., Branch Plants at Philadelphia, Greenville, S. C., and Chattanooga, Tenn. New York Office, 40 Worth St.

FRANKLIN PROCESS

COTTON YARNS AND CUSTOM YARN DYEING

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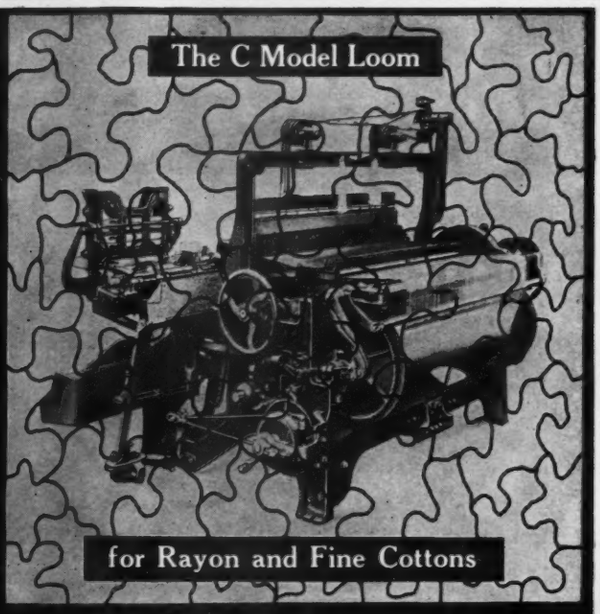
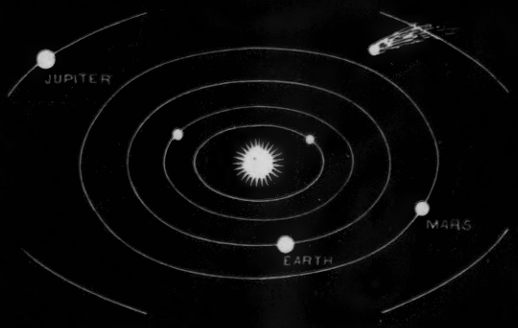
Let's Talk It Over

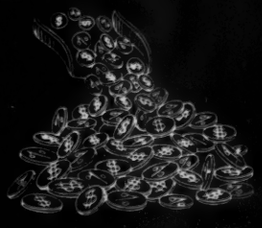


Is Not a Jig Saw Puzzle

It Runs as Smoothly
as the Solar System



It is as Dependable
as the Ocean Tides



And is as Profitable
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It Solves the Problems of Weaving Rayon

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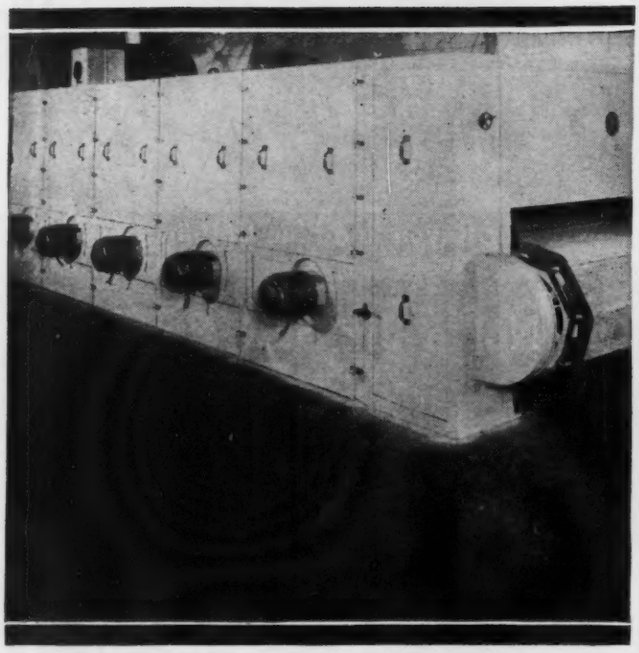
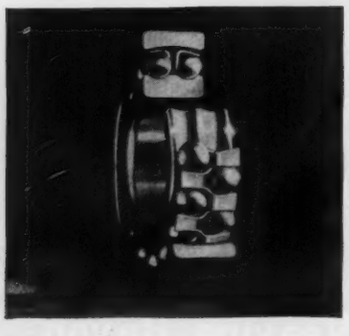
C. G. SARGENT'S SONS CORPORATION

PERFORMANCE UNFAILING MAKES SKF'S PREFERRED



"THE pioneer American builder of dryers," says Sargent . . . and 70 years' experience manufacturing textile equipment makes SKF Performance Take Preference Over Price for their new Single Apron Dryer. Continuity of operation is essential on this machine. SKF's consistently deliver the easy running and reliability so necessary for smooth performance.



SKF Bearings are well adapted for applications of this type where heat conditions are encountered. Sealed housings keep lubricant in and prevent leakage on machines or material in progress. Coupled with freedom from wear and no need of adjustments, there is a certainty that the initial efficiency of SKF's will be maintained throughout a long life with little attention and no annoying breakdowns.

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3045

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● *You may buy a bearing as a bargain but try and get a bargain out of using it, for nothing is apt to cost so much as a bearing that cost so little*

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Monarch Twister
FOR
SILK AND RAYON
FOUNDED 1852
THE ATWOOD MACHINE COMPANY STONINGTON, CONN., U. S. A.
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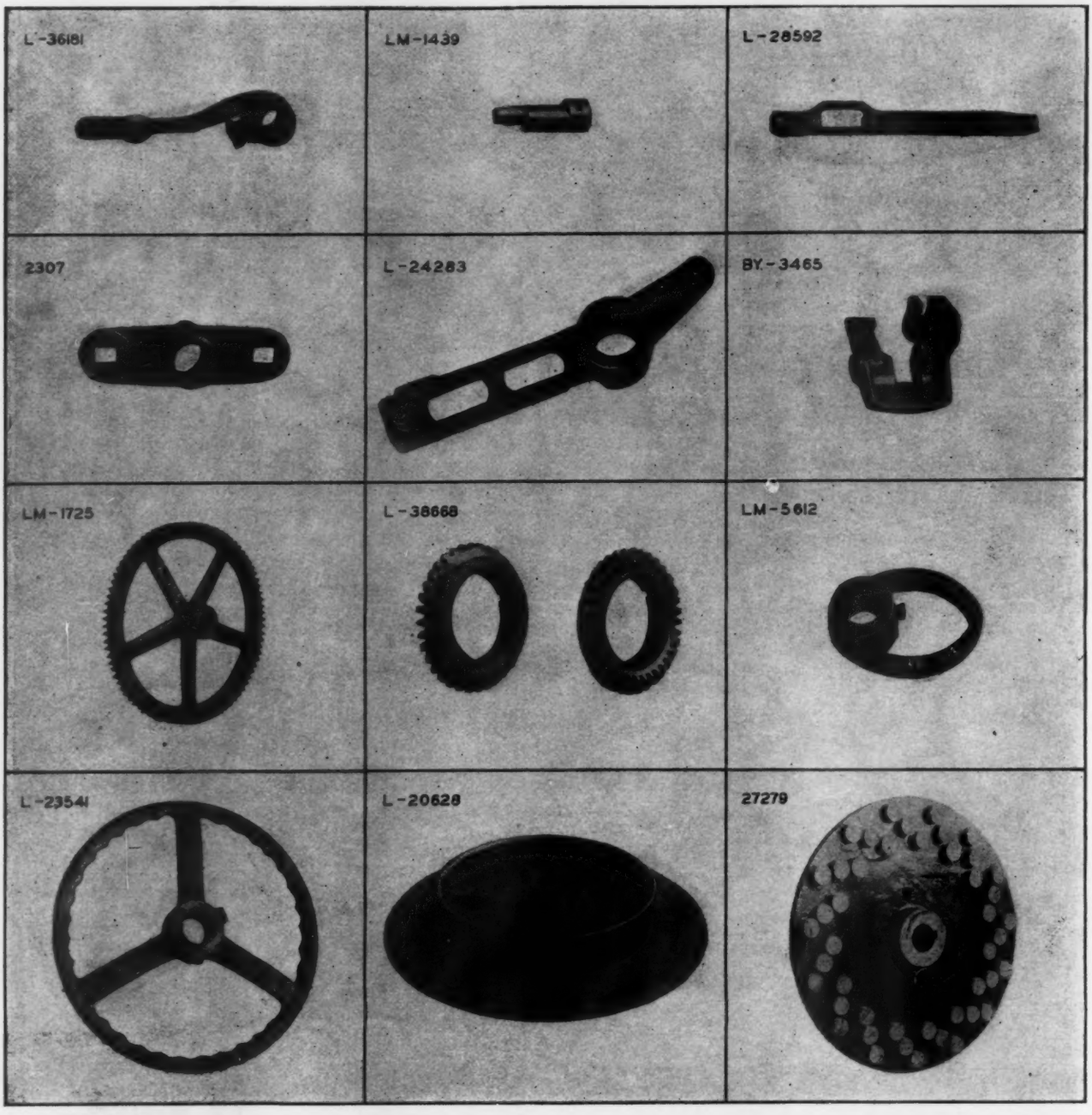
Take Advantage of Present Prices!

A large number of the leading textile mills are putting their equipment in efficient operating condition and completing their parts stocks with HENDERSON Superior Repair Parts at the present low scale of prices.



The HENDERSON complete line of repair parts is made of the highest quality materials from precision patterns. Low overhead and close location enable us to save Southern mills money. Drop us a line today and let us quote you prices on any parts you desire.

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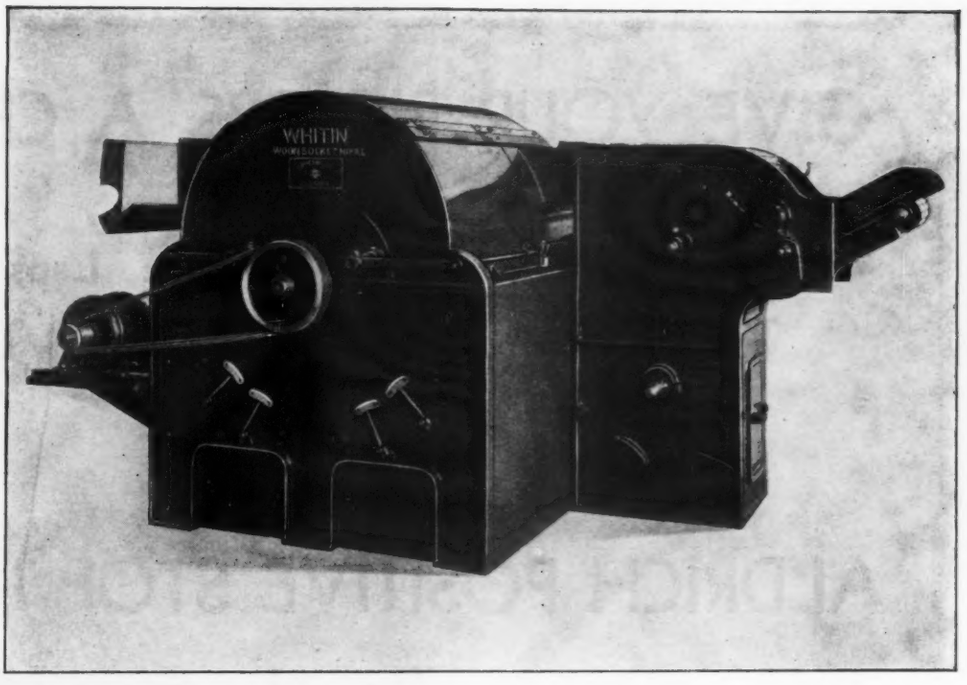

Whitin Spirawhirl
Buckley Cleaner
(Woonsocket Type)

If you are using vertical openers in multiples;
you have tried, or are using other types of cleaning machines;
your present hookup is producing curled and stringy laps;
you have a cleaning problem to solve —

WE RECOMMEND, and are prepared to furnish the *Spirawhirl Buckley Cleaner.*

Because

1. It will *thoroughly open* your cotton *without curl,* regardless of staple and production.

2. It will give you *more cleaning,* with the quality of opening taken into consideration, than any other type of air cleaner.

3. It will *remove the leaf* without breaking it into small particles, because the stock is not held by feed rolls.

4. It will maintain a production up to 3,000 lbs. per hour, when fed from a large capacity bale breaker, or a battery of feeders and lattice feed table.

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MACHINE WORKS
Whitinsville. Mass.

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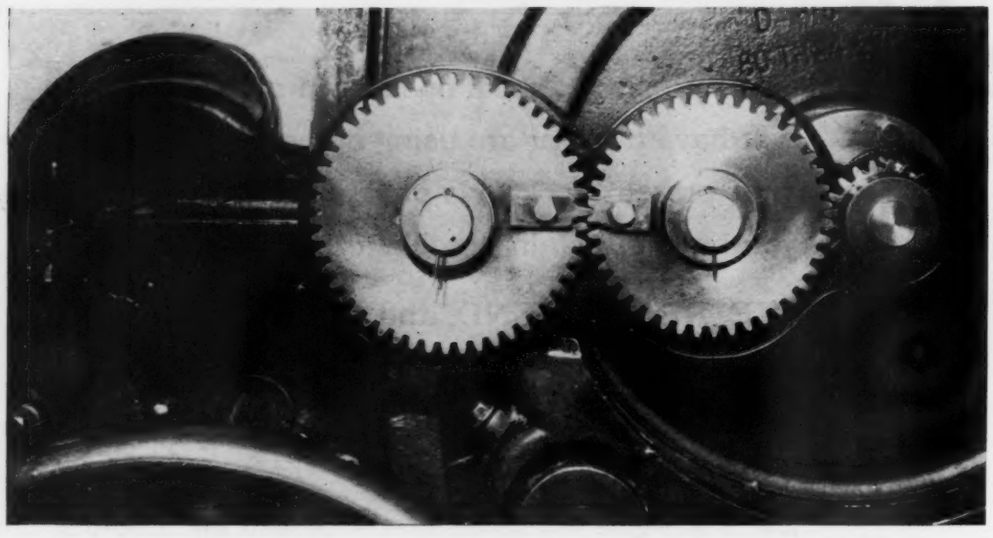
GIVE YOUR PICKERS A CHANCE!

The Best Pickers Will Lose Laps When The Laps Are Not The Right Length.

USE THE ALDRICH POSITIVE STOP MOTION



MAKE EVERY LAP THE SAME LENGTH

Can Be Installed In Five To Ten Minutes

AldricH MachinE

Greenwood, **WorkS** South Carolina

FOR PROFITS ADOPT THIS PROGRAM OF Savings!

Why is it that the biggest textile mills in the country have adopted Alemite High Pressure Lubrication Systems and Alemite Industrial Lubricants as a standard from which they will not change?

Why is it that mill after mill has modernized with Alemite Push Type Fittings from front door to back?

There is only one, easy answer!

An Alemite program of lubrication is a program of savings. Mill operators large and small have found that Alemite SAVES time, SAVES labor, SAVES lubricant, SAVES needless breakdowns and repair bills, SAVES on spoilage.

Every angle of Alemite Lubrication is an angle of savings. The original cost of changing over to Alemite Push Type Fittings is small. You don't have to tear up your mill to do it. It is a matter of very little time. And from the first day you start operation with Alemite Lubrication you START TO SAVE IMPORTANT MONEY!

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Gentlemen: I am interested in information leading to the reduction of costs through proper lubrication.

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In spinning mills, where the quality of the thread depends to a considerable extent on the smooth operation of the spinning and twisting machines, leather belts are the rule—and for quality, COCHECO is a steady favorite.

Smooth service, long service—efficiency and economy, these COCHECO attributes insure satisfaction wherever leather belts are used for the transmission of power to drive industrial machines.

The COCHECO "Book on Belts" gives an interesting insight into the practical reasons for the use of leather belting wherever possible and shows why it pays to use a quality belt—COCHECO. Sent on request.

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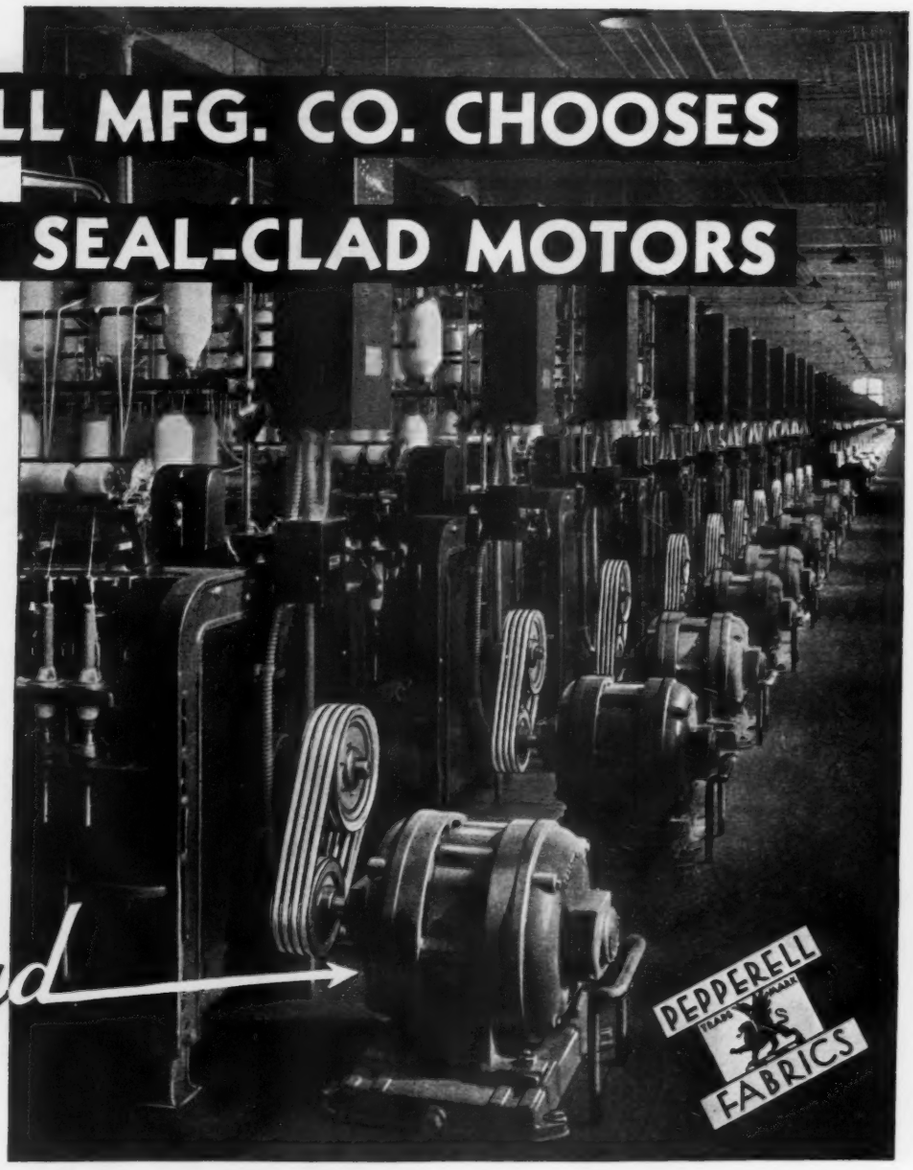
PEPPERELL MFG. CO. CHOOSES SEAL-CLAD MOTORS



Seal-Clad

THESE Allis-Chalmers textile motors in the plant of the Pepperell Mfg. Co., Lindale, Georgia, are of the new Seal-Clad type. They require no screens or other devices for excluding lint or dust. Unobstructed air passages and smooth surfaces of all parts in the air paths permit free travel of lint or dust with the ventilating air.

This new design provides for cartridge type ball bearings or waste packed sleeve bearings, long leads for flexible conduit, and straight or tapered shaft extension.

SEND FOR DESCRIPTIVE LEAFLET 2155

Allis-Chalmers Manufacturing Company, Milwaukee, Wis.

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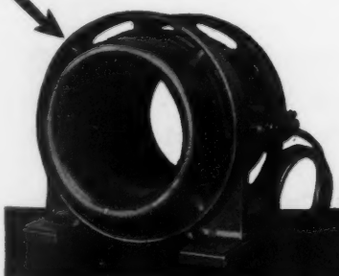
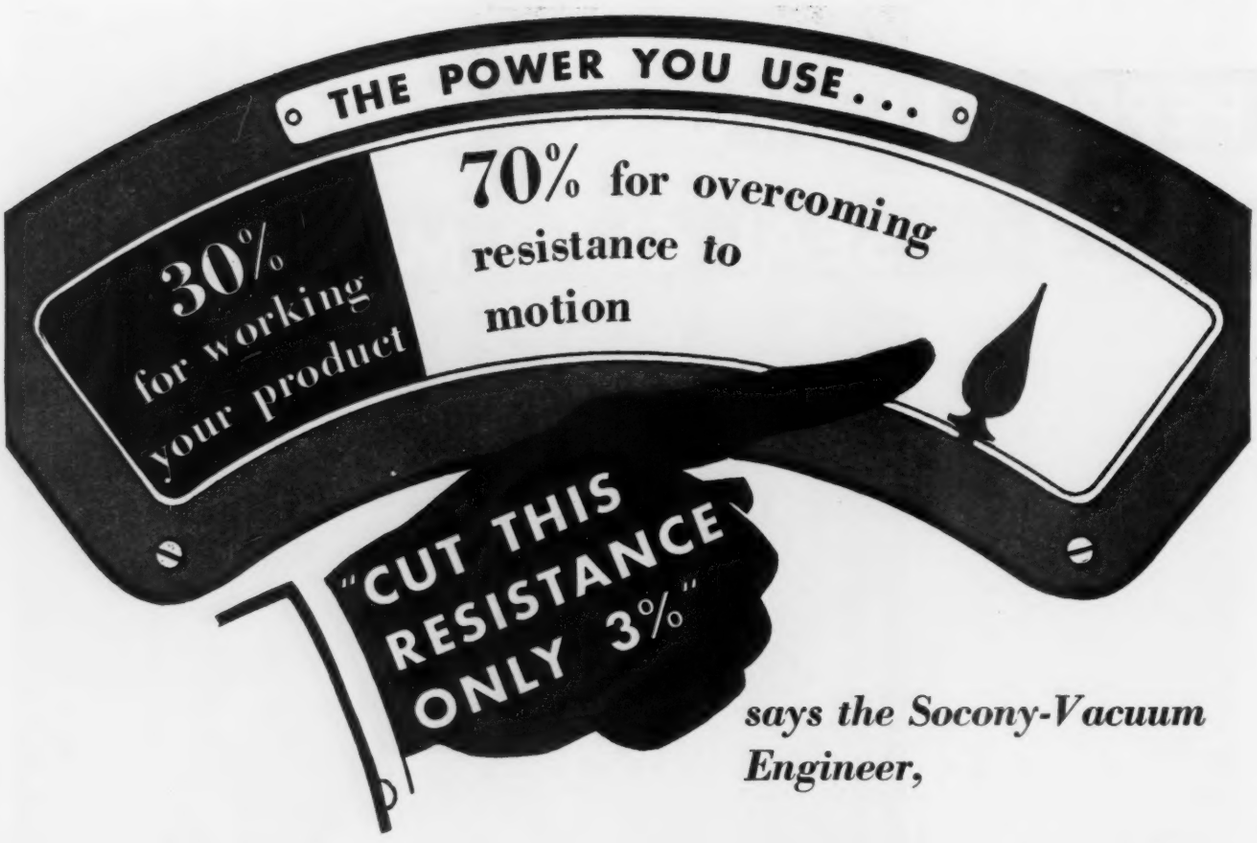
Texrope V-belt Drives
Rotary Compressors
Centrifugal Pumps
Underwriters' Fire Pumps
Steam Turbines - Generators
Steam Engines - Condensers
Hydro-Electric Units
Transformers - All types



ALLIS-CHALMERS
TEXTILE MOTORS



says the Socony-Vacuum Engineer,

"... and pay your annual oil bill with the savings"

Textile mills, as you know, require comparatively little power to work the product. Most of the power you consume and pay for merely overcomes resistance to motion. For example, if anti-friction devices could be installed on all your equipment, your power bills would be greatly reduced.

It isn't practical, of course, to install such anti-friction devices on all equipment. But *you can* reduce to some degree existing costly resistance to motion. Textile mills have found that Gargoyle Vactra X Oils and Gargoyle Velocite Oils, by providing proper film strength, minimize friction *and thereby cut power consumption from 5% to 10%.*

Power is one of your major cost items. Even a small saving in demand load and power consumption would more than pay your entire annual oil bill. Why not let a Socony-Vacuum representative show you the results of power tests made in equipment similar to your own —and suggest ways by which Gargoyle Lubricants can reduce power consumption in your mill.

GARGOYLE

Lubricating Oils

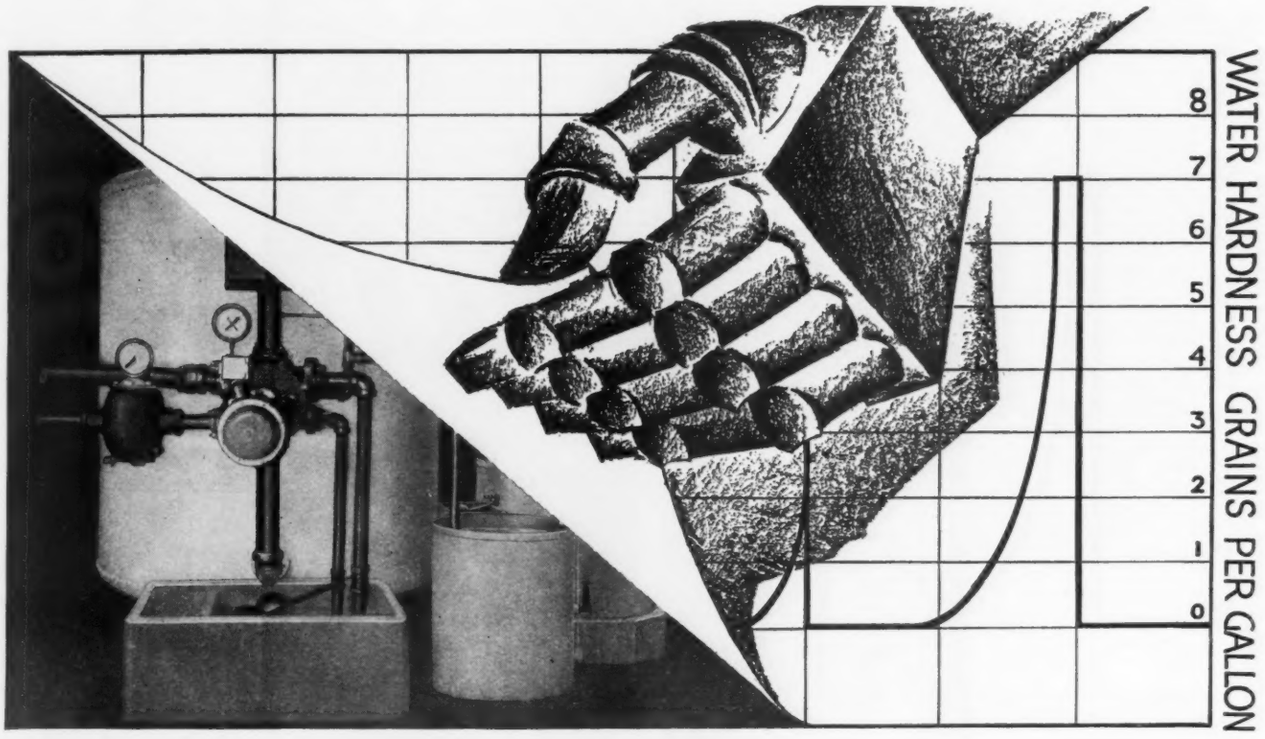
Socony-Vacuum Corporation, 26 Broadway, New York City. Branches and distributors throughout the world.

SOCONY-VACUUM

CORPORATION

MERGER OF STANDARD OIL COMPANY OF NEW YORK AND VACUUM OIL COMPANY

Strip away the Costly Errors with Permutit Automatic Control



THE human mind is not an alarm clock. It does not always remember on time. And in the operation of water treating equipment, an hour's neglect of a needed task may cost you plenty. But thanks to Permutit's recent development of fully automatic control for zeolite water softeners, mechanical precision displaces human fallibility.

It produces water uniformly soft, at lower cost than ever before. Without attention of any sort, Permutit's Automatic Control cuts the softener out of service, backwashes it, regenerates it, and returns it to the line. This development is based upon Permutit's new single valve, motor-operated. Read the seven points at the right.

Because of the money and trouble it saves, water treatment was never more necessary than today. Permutit offers a full line of equipment to handle any water problem; to remove dirt, hardness, color, iron, oil, etc.

Analyses and recommendations free of charge. Send for your copy of the free booklet, "Reducing Textile Costs and Troubles," and we'll be glad to include a folder describing how the automatic water softener operates. The Permutit Company, 330 W. 42nd St., New York City.

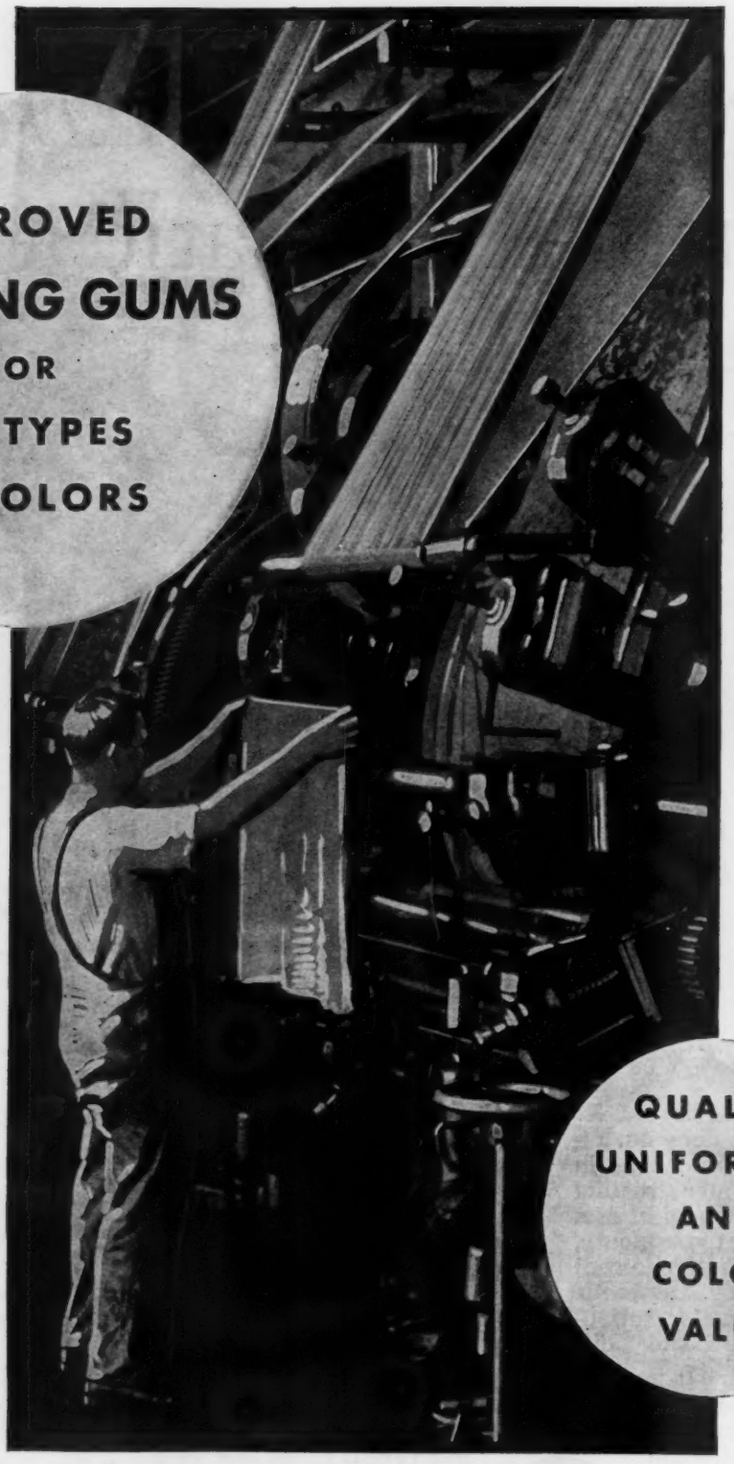
SAVE *with Soft Water*

7 POINTS of SUPERIORITY

1. Most efficient zeolite water softener ever built.
2. All operations automatically carried out under precise control.
3. Completely softened water — no overrunning, no under-regeneration.
4. Thorough washing and rinsing with minimum quantity of water assure clean, active zeolite.
5. Saves salt—uses only the absolute minimum required.
6. Less floor space—more salt storage.
7. Automatic features can be applied to any existing zeolite water softener.

Permutit *Water Treating Equipment*

PAYS FOR ITSELF



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ALL TYPES
OF COLORS

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UNIFORMITY
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COLOR
VALUE

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TORONTO ROCHESTER BUFFALO LOS ANGELES

HEADQUARTERS FOR ALL TEXTILE STARCHES, DEXTRINES, GUMS AND TAPIOCA FLOURS

Back in 1927

• Reprinted from Textile World, Nov. 12, 1927

. . came these opinions from enthusiastic Mill Men!

• *Since* — New Equipment and Product Improvement have steadily advanced the practical value of

BRETON MINEROL PROCESS

(PATENTED)

The ORIGINAL and FUNDAMENTAL Oil Conditioning Process for Cotton.

Here's What We Claimed . . .
In our Advertising of October, 1926

BRETON
MINEROL
PROCESS
OIL SPRAYING
A SYSTEM of adding to the fibre, lubrication other than that which is natural to it. This added lubrication properly adjusted to suit the fibre being treated, the particular mechanical methods used in spinning, and the purpose for which the yarn is to be used, results in the following advantages:
1. The Cotton Cleans Better
2. The Cotton Cards Better with a Better Web
3. The Cotton Draws and Twists to Make a Uniform Yarn
4. Better Sanitary Conditions Obtained in the Mill
5. The Fire Hazard is Materially Reduced
6. The Actual Production of Yarn is Increased
7. The "Invisible" Losses are Materially Smaller
BORNE SCRYMSER COMPANY
17 BATTERY PLACE, NEW YORK

Now—

Let These Several Mill Men Tell You About Oil Spraying!

1. *The Cotton Cleans Better*
"Now I have less fly at the cards and the web is cleaner and more even than before."—*J. O., May 12, 1927.*

2. *The Cotton Cards Better with a Better Web*
"The cotton cleans better, cards better, and with an improved web."—*C. W. C., August 9, 1927.*

3. *The Cotton Draws and Twists to Make a Uniform Yarn*
"Our numbers are kept nearer the correct weight, as we find that atmospheric changes affect us very little."—*G. K. T., September 9, 1927.*

4. *Better Sanitary Conditions Obtained in the Mill*
"So far as the Blowing Room and Carding Engines are concerned, I am perfectly satisfied. There is a noticeable decrease of dust and fly about the machines."—*H. C., April 29, 1927.*

5. *The Fire Hazard is Materially Reduced*
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6. *The Actual Production of Yarn is Increased*
"The cost of about fifteen cents for treatment of a 500-lb. bale of cotton, in my opinion, is the best investment a mill can make, as the returns are many times the cost."
—*L. E. A., October 4, 1927.*

7. *The "Invisible" Losses are Materially Smaller*
"We have used this oil for about two years and find we produce more and better yarn from using it."
—*W. J. P., October 21, 1927.*

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AC INC

FROM A SINGLE SOURCE

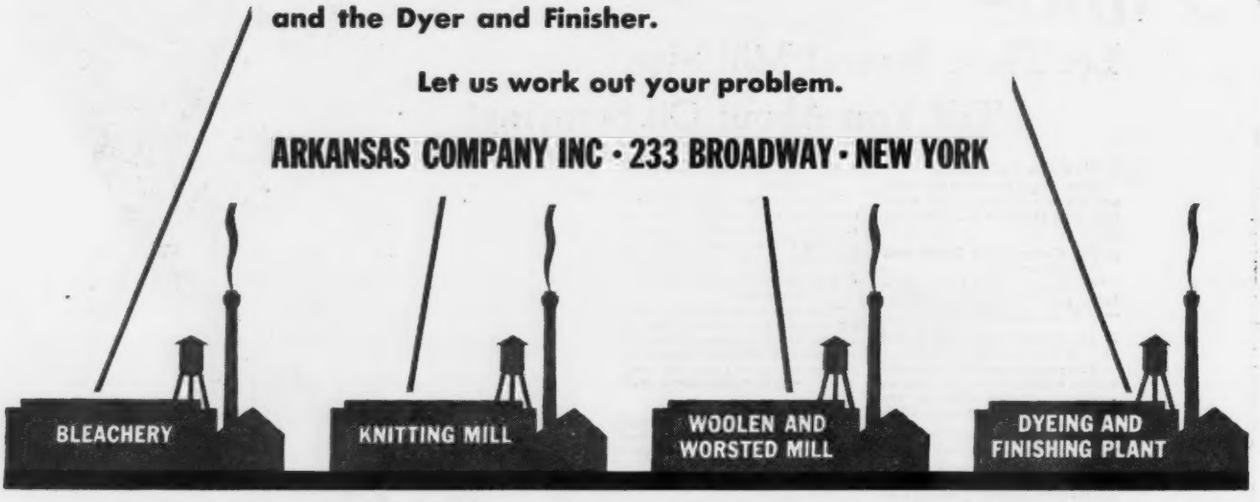
SPECIALTIES sold under our trade-mark have been developed by a staff of technicians well acquainted with the actual needs of the textile industry.

Our men not only understand the complex chemistry of a process, but are well grounded in practical experience.

"From a single source" this broad knowledge is available to cope with the problems of the Bleacher—the Knitting Mill—the Woolen and Worsted Mill and the Dyer and Finisher.

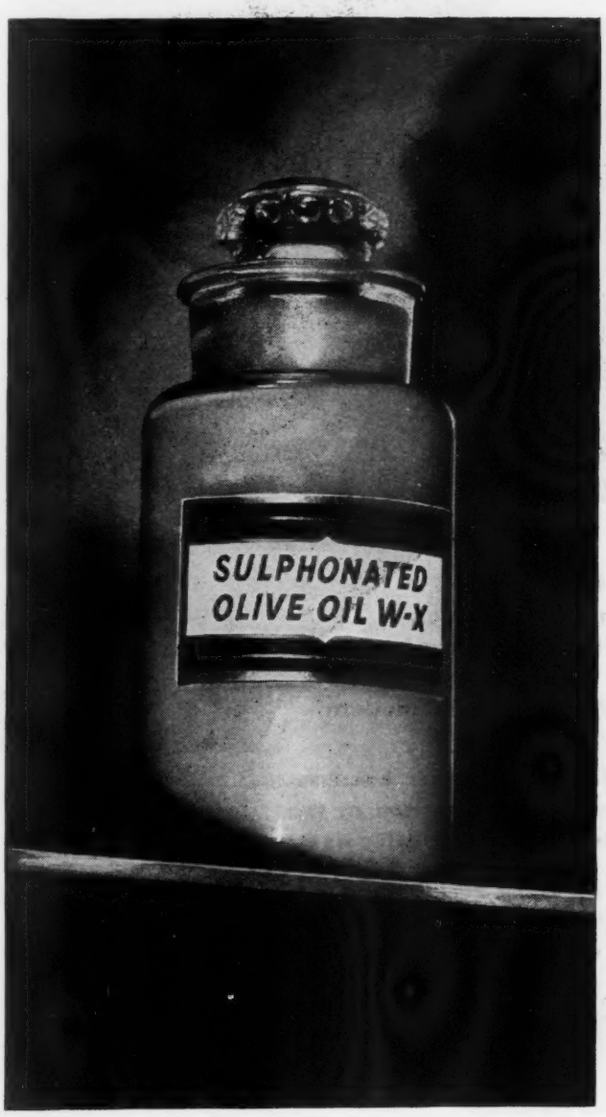
Let us work out your problem.

ARKANSAS COMPANY INC · 233 BROADWAY · NEW YORK



ARKANSAS CHEMICALS

SULPHONATED OLIVE OIL W-X



Gives a full supple finish on all fabrics

● Sulphonated Olive Oil W-X is absolutely pure Olive Oil, highly sulphonated and completely soluble. It leaves no after odors on fabrics.

Other vitally important factors are its low acid value, remarkable penetration, resistance to salts, low neutral fat, stability and high SO_3 content.

Several large finishing plants have already reported unusual results in finishing fine fabrics with this new and improved sulphonated olive oil.

FREE!—Working samples for your own testing.

Your own tests will convince you of the superior qualities of this new and improved oil. Write today for your free sample.

MONOPOLE OIL

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● Monopole Oil is readily soluble in hot or cold water. It produces well-penetrated dyeings, bright colors and leaves the yarn or fabric in a soft and lustrous condition. Free sample and descriptive booklet available on request.

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Are You Listening?
..there's BETTER BUSINESS stirring!

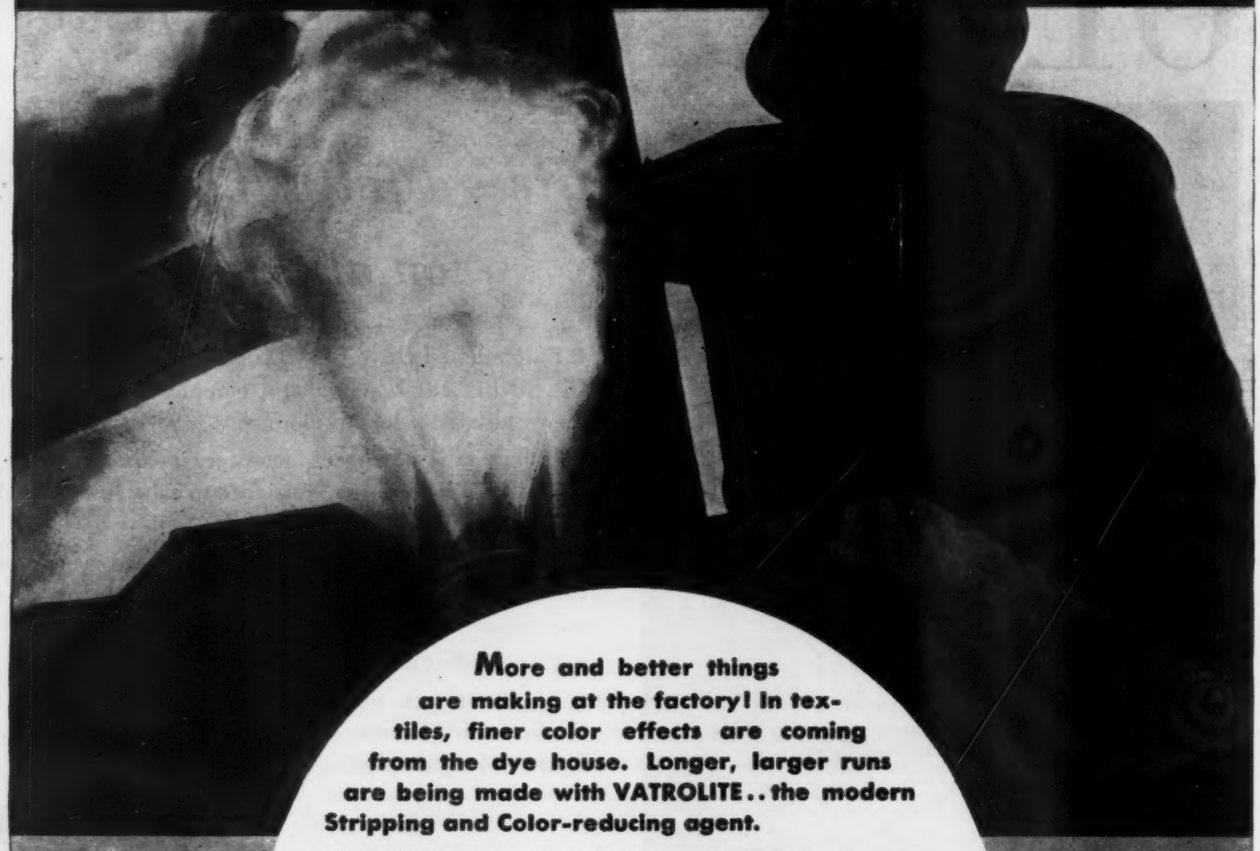

photo by Keystone View

More and better things are making at the factory! In textiles, finer color effects are coming from the dye house. Longer, larger runs are being made with VATROLITE.. the modern Stripping and Color-reducing agent.

VATROLITE rides the high wave of favor because it amply margins every point of comparison at the vat.. it is uniformly pure, full strength, *right!*

● Say *"VATROLITE"*—*any quantity* for immediate shipment. Packed in safe, handy drums of 50, 100 or 250 lbs. each.

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SODIUM HYDROSULPHITE
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Vol. 97 **COTTON** No. 6

June, 1933

W. R. C. SMITH, Publisher
T. W. McALLISTER, Editorial Director

ROBERT W. PHILIP, Editor

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Exclusive Producers of

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A Survey of Spinning Practice and Results on Print Cloth Yarns

On the two pages next following we present, through the courtesy and co-operation of the mills contributing to it, a compilation of spinning data on print cloth numbers that will give a good cross-section of practice and results in a group of mills on numbers in the range of 30s warp and 40s filling. All of the mills covered in the tabulation are on these counts, mostly for print cloth constructions, and all of them are located in the South. While mill names of course are omitted, it may be stated that the spindleage represented by this information totals in excess of 1,250,000 spindles—so that these figures represent fairly well a picture of prevailing conditions in print cloth mills generally in this section.

Information Covered in Survey

In the compilation of the questionnaire, an effort was made to include every item which might have a bearing upon the spinning conditions. The forms are self-explanatory, but it might be stated that the items covered, under Warp, are: Yarn Number; Hank Roving Used; Twist Multiple in Yarn; Staple and Grade of Cotton; Front Roll Speed; Spindle Speed; Length of Traverse; Diameter of Ring and of Bare Bobbin; Gauge of Frame; Size of Traveler; Size of Front Roll; Whether Long or Regular Draft; Type of Spindle; Flange of Ring; Top Roll Covering; Twist Multiple in Roving; Breaking Strength of Yarn; Ends Down Per 1,000 Spindle Hours; Yards of Yarn on Bobbin; Spindles per Spinner, per Doffer, per Section Man, per Cleaner, per Oiler and Bander; Whether Band or Tape Drive; Age of Spinning Frames; Relative Humidity; Build Used on Bobbin.

The same information, except the last item, is supplied on the filling, and in addition, the construction and weight of cloth being woven is given in each case.

This investigation was started by a casual discussion as to what front roll speeds are run by mills on print cloth. This information was secured, and, incidentally, disclosed among these 23 mills, a variation of from 102 r.p.m., for the lowest mill, 31s warp, to a high of 134 r.p.m. on 30s warp—with an average of 119.8 r.p.m.; and a range on filling from 101 r.p.m. on 40s filling, to a high of 123 r.p.m. on 38s filling—with an average of 108.8 r.p.m. on filling for the 23 mills.

While this revelation was surprising to many of us—and interesting to us all—it was realized that there were many other factors that would have a bearing upon the speed, and other results which the speed itself might influence, so the inquiry was broadened until it covers, we feel, all available details having an influence on the spinning.

One factor is the gauge and age of the frames. An interesting case is Mill No. 23, which has two separate units of warp frames on 30s, both making the same number from the same roving and cotton, but we find one set of their frames running 132 r.p.m., whereas the others are making only 114 r.p.m. on the front roll. A search as to the reason why discloses first that the higher speeded frames are 3½-inch gauge, with 1¾-inch rings, whereas the slower frames are 2¾-inch gauge with 1 11/16-inch rings! And that further, the slower frames were installed in 1902 and 1910, whereas the others, the ones running 132 r.p.m., are from 17 to 10 years younger, having been installed in 1919.

Another one of the high speed mills, No. 18, is getting 134 r.p.m., front roll speed on 30s warp. We find that this mill has long draft frames, 1932 model, 3¼-inch gauge, 1¾-inch ring.

The mill with the lowest speed on warp, No. 5 (with 102 r.p.m.) shows 2¾-inch gauge frames that are 32 years old! In addition, this mill, we note, uses ⅞ to 15/16-inch cotton on 30s, which further contributes to the low speed, undoubtedly.

An Analysis of the Reports

Similar examples could be described almost indefinitely, but we shall leave to the reader the pleasure of doing this for himself, only repeating that as fully as we could determine, every item in the spinning room, with a bearing upon the general practice, speeds, etc., is included in the picture given by this tabulation.

Some general deductions may be drawn, however. The drafts being run may be calculated from the yarn numbers and hank rovings shown. It is obvious in each case whether single or double roving is used. It will be found that in some cases where the regular three-roll system of drafting is employed, unusually high drafts are being used. The mills equipped with long draft systems show good results in relation to spindle speed, cotton used, ends down and breaking strength.

We find that on the 30s warp, the lowest spindle speed reported is 9,200 r.p.m., and the highest is 10,500 r.p.m., with an average of 9,712 r.p.m. Out of the

Tables of Practice and Results in Spinning Print Cloth Numbers as Reported by 23 Southern Mills

The information in the accompanying tables was furnished by 23 southern mills on 30s warp and 40s filling, in response to a questionnaire asking for practice and results in the spinning room on numbers in this range. The table on this page shows, by mill number, the data on warp; and the table on the following page shows the information furnished by the same mills on their filling yarns.

More than 1,250,000 spindles are represented in the information here given. The report is presented as reflecting current practice as reported by the different mills. It is not intended to be complete or conclusive, but the information will be of interest as showing present-day practice among mills in this group. An effort was made to include every item in the spinning room with a bearing upon practice and results.

MILL NO.	YARN NUMBER	HANK ROVING	TWIST MULTIPLE IN YARN	STAPLE COTTON	GRADE COTTON	FRONT ROLL SPEED	SPINDLE SPEED	LENGTH TRAVERSE	DIAM. OF RING	DIAM. OF BOBBIN	GAUGE OF FRAME	SIZE OF TRAVELER	SIZE OF FRONT ROLL	LONG OR REG. DRAFT	TYPE OF SPINDLE	FLANGE OF RING	TOP ROLL COVERING	TWIST MULTIPLE - ROVING	BREAKING STRENGTH OF YARN	ENDS DOWN PER 1000 SP. PER HOUR	YARDS YARN ON BOBBIN	SIDES PER SPINNER	SPINDLES PER SPINNER	SPINDLES PER DOFFER	SPINDLES PER SEC. MAN	SPINDLES PER OILER & BANDER	BAND OR TAPE DRIVE	SPINDLES PER CLEANER	AGE OF SPINNING FRAMES	RELATIVE HUMIDITY PER CENT.	BUILD USED ON WARP BOBBINS
1	30s	5.75	4.75	1"	S.L.M. Western	114	9500	7"	1 3/4"	7/8"	2 3/4"	8/0	1"	Reg.	Whitin Plain	1	Calf	1.56	54.75	40	3000	12	1248	5200	13,728	13,728	Band	None	1830	65	Warp
2	30s	6.25	4.81	1"	L.M.	115	9223	6"	1 3/4"	1 15/16"	3"	6/0	1"	Reg.	Whitin Plain	2	Cork	1.30	58	25	2880	8-10	960-1200	4720	13,440	13,440	Band	None	1918	50	Warp
3	31s	4.40	4.85	1 1/32"	Mid	115	9750	6"	1 3/4"	1 7/8"	3 1/2"	5/0	1"	Long	Whitin Mod.	1	Sheep	1.30	55.4	20	3600	8-10	960-1200	3960	5844	5844	Tape	None	1927	65	Comb
4	30s	5.25	4.50	1 1/16"	1/2 S.L. 1/2 S.L.M.	123	9200	6 1/2"	1 3/4"	1 15/16"	2 3/4"	3/0-6/0	1"	Reg.	Draper No. 2	2	Sheep	1.31	62	52	2900	12-14	1536-1792	6144	22,162	12,664	Band	Band	1907	55-60	Comb
5	31s	6.25	5.43	1 1/32-1 1/16"	Mid.	102	9800	6 3/4"	1 3/4"	1 15/16	2 3/4"	3/0	1"	Reg.	Draper No. 7	2	Sheep	1.72	55		2604	10-12	1130-1360 A.V.	5356 A.V.	5875 A.V.	5875	Band	None	1900	60	Fill
6	30s	5.00	4.75	1"	Under Mid.	118	9500	6 1/2"	1 1/16"	1 5/16"	2 3/4"	7/0	1"	Reg.	N. Mullin	1	Cork	1.20	60	21	2835	10	1120	4920	14,396	14,396	Band	None	1902	60	Warp
7	30s	4.00	4.65	1 1/16"	Mid.	118	9300	7"	1 3/4"	1 15/16"	3"	6/0	1"	Reg.	Draper No. 7 N. Mullin	1	Sheep	1.55	49	50	3721	10	1260	5424	15,736	15,736	Band	None	1915	60	Fill
8	30s	4.00	4.75	1"	1/2 Mid. 1/2 L.M.	118	9550	6 3/4"	1 3/4"	1 7/8"	3 1/2"	6/0	1"	Long	N. Mullin No. 2	1	Calf	1.35	62	29.2	3600	10-12	1260-1512	5670	11,340	23,688	Tape	None	1924-1928	62-65	Warp
9	30s	5.75	4.60	1"	S.L.M.	121	9400	6"	1 3/4"	1 7/8"	2 3/4"	7/0	1"	Reg.	Whitin	2		1.39	55.6	31	3215	10	1120	4256	17,920	85/12	Band	None	1912	55-60	Warp
10	30/1s	4.00	4.75	1"	S.L.M.	119	10,460	6 1/2"	1 15/16"	1 5/16"	2 3/4"	7/0	1"	Reg.	Draper No. 7 N. Mullin	1 1/2	Sheep	1.35	58	59	3960 A 3300 M	8-12	896-1344	4256-6804	13,468 A 12,536 F	12,992	Band	None	1895	71 1/2 Reg.	Warp
11	30/1s	4.00	5.45	1"	S.L.M.	111	9920	7 1/4"	2"	1 5/16"	3"	5/0	1"	Reg.	N. Mullin	2	Sheep	1.35	52	108	4300	8-12	816-1224	6528	25,152	13,056	Band	None	1905	71 1/2 Reg.	Warp
12	32s	3.90	4.33	31/32"	Mid.	128	9900	6 1/2"	1 3/4"	1 5/16"	2 3/4"	6/0	1"	Reg.	Whitin Orig. No. 2	1	Cork	1.59	54	65	3400	12	1344	5376	15,232	15,232	Band	None	1912	56	Comb
13	30s	3.50	4.75	1"	Mid.	181	9700	6 1/2"	1 3/4"	1 7/8"	2 3/4"	6/0	1"	Long	Draper No. 7	2	Leather	1.20	56	52	3200	18	2016	4032	14,784		Tape	2913	1912	55	Comb
14	31s	5.50	4.50	1"	Mid.	117	9800	7"	1 3/4"	1 15/16"	3 1/2"	2/0	1"	Reg.	Med. Gravity	2	Leather	1.30	60	28	3600	18	1872	5200	10,000-12,000	20,000-24,000	Tape & Band	12000	1920	65-70	Fill
15	30s	5.00	4.45	1 1/8"	S.L.M.	122	9500	7"	1 3/4"	1 15/16"	2 3/4"	8/0	1"	Reg.	Whitin Orig. No. 2	2	Sheep	1.38	67	35	3193	12	1536	4950	16,512	89,024	Band	None	1895	58	Warp
16	31s	2.00	4.55	1 1/2	M & S.M.	128	9500	8 1/8"	1 3/4"	2"	2 3/4"	12/0	1"	Long	Whitin Orig. No. 2	2	Calf	1.02	55	60	3300	8-10	1024-1280	6826	20,480	20,480	Band	None	1912	60	Comb
17	30s	5.40	4.50	1"	S.L.M.	130	10,200	7"	1 3/4"	1 25/32-1 29/32	3 1/2"	3/0	1"	Reg.	Plain No. 2	1	Cork	1.32	59	32	3150	10	1320	6864	(c) 21,120 (f) 62,066		Tape	None	1927	60	Fill
18	30s	3.50	4.53	1 1/32"	Mid.	134	10,500	6 3/4"	1 3/4"	2"	3 1/2"	6/0	1"	Long	Whitin Orig. No. 2	2	Calf & Cork	1.32	67	21.7	4031	10	1810	6804	20,000	20,000	Tape	None	1932	58	Warp & Comb
19	32s	4.10	4.65	1 1/16"	Mid. Western	110	9,900	7"	1 3/4"	1 7/8"	2 3/4"	5/0	1"	Reg.	Whitin Orig. No. 2	1	Cork & Sheep	1.45	62.5 M	31 M	3240	21	2646	5292	10,584	10,584	Tape	5292	1918-1920	65	Fill
20	29 1/2s	3.65	4.50	1"-1 1/32"	S.L.M.	132	9945	7 3/8"	1 3/4"	2"	3 1/2"	6/0	1"	Long	Draper N. Mullin No. 3	1	Cork	1.20	62.4	46.48	4200	9	1404	6240	24,960	24,960	Tape	None	1931	45	Comb
21	29 1/2s	4.25	4.75	1"-1 1/32"	Mid. Western	116	9400	6 5/8"	1 13/16"	1 15/16"	2 3/4"	4/0	1"	Reg.	Draper No. 7 Whitin	1	Cork	1.43	56	33.6	3800	16	2304	6020	12,040	12,040	3816 Tape 22,624 Band	4816	1899	58-60	Warp
22	30s	4.75	4.75	1"	Mid	118	9600	7"	1 3/4"	1 15/16"	2 3/4"	6/0	1"	Reg.	Whitin Mod. No. 1	1	Sheep	1.30	56	50.67	3600	8-12	1024-1536	7680	15915	15915	Band	None	1912-1922	56	Fill
23A	30s	5.00	4.75	1 1/32"	S.L.M.	114	9648	7"	1 13/16"	1 15/16"	2 3/4"	2/0	1"	Reg.	Whitin No. 103 Mod. No. 1	1	Leather	1.44	535	45.4	3400	12	1632	5440	14,144	20,128	Band	None	1902-1910	65	Fill
23B	30s	5.00	4.65	1 1/32"	S.L.M.	132	10,500	7"	1 3/4"	1 15/16"	3 1/2"	3/0	1"	Reg.	Whitin Mod. No. 1	2	Leather	1.44	525	41.3	4000	12	1440	4320	8,640		Tape	None	1919	65	Fill

The above table covers WARP, and the one on the following page covers FILLING, in the mills identified by number in the first column. NOTE: The information on "Ends Down" is hardly comparable since no information is given regarding conditions of test, etc. . . . . .

MILL NO.	YARN NUMBER	HANK ROVING	TWIST MULTIPLE IN YARN	STAPLE COTTON	GRADE COTTON	FRONT ROLL SPEED	SPINDLE SPEED	LENGTH TRAVERSE	DIAM. OF RING	DIAM. OF BOBBIN	GAUGE OF FRAME	SIZE OF TRAVELER	SIZE OF FRONT ROLL	LONG OR REG. DRAFT	TYPE OF SPINDLE	FLANGE OF RING	TOP ROLL COVERING	TWIST MULTIPLE -ROVING	BREAKING STRENGTH OF YARN	ENDS DOWN PER 1000 SP PER HOUR	YARDS YARN ON BOBBIN	SIDES PER SPINNER	SPINDLES PER SPINNER	SPINDLES PER DOFFER	SPINDLES PER SEC. MAN	SPINDLES PER OILER & BANDER	BAND OR TAPE DRIVE	SPINDLES PER CLEANER	AGE OF SPINNING FRAMES	RELATIVE HUMIDITY PER CENT	CONSTR. & WEIGHT OF CLOTH
1	40s	7.14	3.25	1"	S.L.M. Mid.	101	3300	7"	1⅛"	3"	2½"	10/0	1"	Reg.	Mason Fibre	1	Calf	1.72	35.75		1722	10	1040	5928	13,728	13,728	Band	None	1930	65	60"-80" 64"-88"
2	40s	6.25	3.60	1"	L.M.	107	8500	5½"	1⅛"	3"	3"	14/0	1"	Reg.	Mason Mid.	2	Cork	1.30		60	1470	8-10	960-1200	2544	17,280	13,440	Band	None	1918	50	60"-80" 64"-88"
3	40s	3.50	4.25	1"-1⅛"	Mid.	100	8500	6"	1⅛"	3"	3"	11/0	1"	Long	Mason Mid.	1	Sheep	1.30		25	1700	3	1242	2484	5844	5844	Tape	None	1927	65	60"-80" 64"-88"
4	33s	6.25	4.04	1⅛"	½ S.L.M. ½ S.L.M.	108	9400	6"	1⅛"	1"	2½"	10-9/0	1"	Reg.	Draper No. 2	2	Sheep	1.36		75	2000-2300	10-12	1280-1536	4608	22,162	17,664	Band	8444	1907	55-60	80"-90" 96"-108"
5	36s	6.60	4.23	1⅛"	Mid.	104	9350	5½"	1⅛"	½"	2½"	10/0	1"	Reg.	Draper No. 2	2	Sheep	1.60	46.0		1321	10-12	1140-1360	2367 M.	5835 M.	5875	Band	None	1900	60	72"-84" 80"-96"
6	36s	5.85	3.25	1"	½ mdn. Mid.	121	8500		1⅛"	½"	2½"	12/0	1"	Reg.	Mason Mid.	1	Cork	1.21	44.0	64	1400	8	896	2312	14,336	14,336	Band	None	1902	60	72"-84" 80"-96"
7	40s	5.20	4.24	⅞"	Mid.	105	8800	7"	1⅛"	3"	3"	12/0	1"	Reg.	Mason Mid.	1	Sheep	1.69	34.0	55	2112	10	1260	4964	14,776	14,776	Band	None	1915	60	64"-80" 72"-88"
8	40s	4.50	4.01	1"	½ Mid. ½ S.L.M.	105	9597	5½"	1⅛"	3"	3"	9/0	1"	Long	Mason Mid.	1	Calf	1.35	39.5	36.3	1484	8-10	1152-1440	5036	23,856	23,650	Tape	None	1924-1928	62-65	68"-80" 76"-88"
9	40s	5.75	3.96	1"	S.L.M.	112	8600	6"	1⅛"			17/0	1"	Reg.	Draper No. 2	1½		1.39		43	1550	10	1120	3136	13920	13056 M. 2036 F.	Band	None	1912	55-60	68"-80" 76"-88"
10	41s	4.75	4.25	1"	S.L.M.	114	9240	6½"	1⅛"	½"	2½"	12/0	1"	Reg.	Draper No. 2 Mason Mid.	1½	Sheep	1.35	36.4	68	2040	8-12	896-1344	2912-3360	12,992	12,992	Band	None	1912	55-60	68"-80" 76"-88"
11	41s	4.75	4.00	1"	S.L.M.	104	9010	6½"	1⅛"	½"	2½"	16/0	1"	Reg.	Draper No. 2 Mason Mid.	2	Sheep	1.35	31.0	117	2064	8-12	896-1344	4480	12,096	12,096	Band	None	1905	72"-84" 72"-84"	68"-80" 76"-88"
12	40s	5.40-4.5	4.41	¾"	Mid.	109	9400	6½"	1⅛"	½"	2½"	10/0	1"	Reg.	Draper No. 2 Mason Mid.	1	Leather	1.66	32.0	70	2000	12	1344	3584	15,232	15,232	Band	None	1912	56	68"-80" 76"-88"
13	40s	6.00	3.50	1"	Mid.	102	8200	6½"	1⅛"	½"	2½"	13/0	1"	Reg.	Draper No. 2 Mason Mid.	1½	Leather	1.20	34.0	46	1600	20	2160	3024	14,784	14,784	Band	3456	1901	65	68"-80" 76"-88"
14	41s	6.75	3.85	1"	Mid.	109	8700	7"	1⅛"	½"	3"	6/0	1"	Reg.	Mid Sm.	2	Leather	1.40	38.0	32	2100	22	2112	2400	20,000-24,000	20,000	Tape	13800	1916	65-70	68"-80" 76"-88"
15	40s	7.00	4.26	1"	Mid.	104	9500	7"	1⅛"		2½"	14/0	1"	Reg.	Mason Mid.	2	Sheep	1.98		23	2772	10	1280	2723	16,512		Band	None	1935	58	80"-80" 88"-88"
16	40s	2.90	4.00	1⅛"	M.S.L.M.	103	3500		1⅛"	½"	2½"	14/0	1"	Long	Mason Mid.	1	Calf	1.05	38.5	70	1600	8-10	1024-1280	2816	20,480	20,480	Band	None	1912	50	
17	40s	5.40	3.95	1½"	S.L.M.	118	9900	6½"	1⅛"	½"	3"	11/0	1"	Reg.	Draper No. 2	1	Cork	1.32	40.0	45	2370	8	1056	3300	21,120	21,120 m 15,000 f	Tape	None	1927	60	66"-80" 72"-88"
18	40s	5.50	4.14	1"	Mid.	101	8500	5½"	1⅛"	½"	2½"	6/0	1"	Reg.	Mason Mid.	2	Calf	1.38		34.6	1585	10	1120	3584	20,000	20,000	Band	None	1904	58	68"-80" 76"-88"
19A	36s	6.00	3.93	1"	Mid.	123	9300	6"	1⅛"		2½"	7/0	1"	Reg.	Mason Mid.	1	Cork & Sheep	1.63	46	31 M.	1530	10	2160	2430	9960	9960	Tape	4980	1918-1920	65 M.	100-64 112-88
19B	41s	6.00	3.75	1"	Mid.	110	8293	6"	1⅛"		2½"	11/0	1"	Reg.	Draper No. 2 Mason Mid.	1	Cork & Sheep	1.63	38	31 M.	1620	14	1680	2490	9960	9960	Tape	4980	1918-1920	65 M.	
20	41s	7.25	3.75	1"	S.L.M.	114	8600	5½"	1⅛"	½"	2½"	16/0	1"	Reg.	Draper No. 2	2	Leather	1.30	37	50.5	1560	10	1120	4032	14,784	14,784	Band	3805	1912	45	72"-84" 80"-96"
21	41s	5.75	3.75	1"-1¼"	Mid. Middling	103	8300		1⅛"	½"	2½"	9/0	1"	Reg.	Draper No. 2 Mason Mid.	1	Cork	1.40		58.5	2000	16	2112	3520	17,424	20,064	Band	3805	1899	58-60	68"-80" 76"-88"
22	40s	5.50	4.25	1"	Mid.	112	8500	5½"	1⅛"	½"	2½"	14/0	1"	Reg.	Draper No. 2	1	Sheep	1.40			1560	8-10	1024-1280	3072	15,915	15,915	Band	None	1913-1912	56	64"-80" 72"-88"
23	40s	6.00	4.13	⅞"	Mid.	114	9239	6"	1⅛"	½"	2½"	11/0	1"	Reg.	Draper No. 2	1	Leather	1.53	34.5	59.4	1600	10	1360	3264	13056	20,128	Band	None	1912-1910	65	72"-76" 84"-88"

24 installations reported by these 23 mills, six had been equipped fully with long draft of one type of another. Twelve reported No. 1 flange rings, and 11 the No. 2 flange, with one using both.

On the warp, 16 of the installations use 1¾-inch ring. Mill No. 11 has the largest ring, 2-inch, Mill No. 12 coming next with a 1⅞-inch ring.

There are four mills with 3½-inch gauge frames on warp; three with 3¼-inch; three with 3-inch; and the other fourteen installations are of 2¾-inch gauge.

An interesting development was shown under Type of Roll Covering. We find, under warp, eight of the mills had installed cork rolls on sufficient frames to consider themselves as "cork mills", and four reported being equipped with calf-skin.

In the next column, under Twist Multiple in Roving, Warp, we find quite a range, from 1.02 to 1.59, with an average of 1.365. Breaking strength tests on the warp range from 49 pounds to 67 pounds, with an average of 57.59 pounds.

Another interesting item is that, on warp, only five of the 24 installations reported the use of special hands for cleaning, and there is quite a variation in the number of spindles assigned to these hands, where they are used.

A significant revelation of the report is the age of the machinery. Only 11 of the mills reported warp frames installed since 1913, or 20 years ago; the remainder going back as far as 1890, Mill No. 1 reporting frames installed in 1890! Only nine show filling frames less than 20 years old.

On the filling frames, we find a range in front roll speeds from a low of 100 r.p.m. on 40s, Mill No. 3 ,to a high of 123 r.p.m., on 38s, Mill No. 19-a, or an average of 108.8 r.p.m. Spindle speeds on the filling range from 8,200 r.p.m. to 9,940 r.p.m., with an average of 8,844.5 r.p.m.

Four mills have 3-inch gauge frames on filling; all of the others reported 2¾-inch.

In 13 installations, the No. 1 flange ring is used on filling, in 8 the No. 2 is used, while three mills use both.

Three of the mills report long draft on filling; six are equipped with cork rolls, and four with calf-skin.

The roving twist multiple on filling ranges from 1.05 (in Mill No. 16, which uses 1.02 on warp) to 1.69, with an average of 1.424.

Going back to hank rovings, we find on 30s warp a range from 2.00-hank single to 6.25-hank double; and on filling, from 2.30-hank single to 7.25-hank double.

The variations in the grade and staple of cotton used are obvious from a glance down those columns. On warp, the longest traverse reported is 8⅛-inch.

One of the most surprising ranges is in the size of traveler used, this going on 30s warp, from 2/0 for Mill No. 23, to 12/0, Mill No. 16. On filling, the traveler weight ranges from 6/0, Mill No. 18 and Mill No. 14, to 16/0, Mill No. 20 and Mill No. 11.

There is shown perhaps a greater variation in ends down per 1,000 spindle hours than would be indicated if all tests were made under comparable conditions; undoubtedly some mills reported their best figures, others giving averages over long periods, and one, at least, explained their figure (one of the highest) was not representative but represented the conditions at the time the request for information was received. This fact should be remembered in making comparisons.

Not only the sides per spinner, but also the *spindles* per spinner, are shown, which makes the figures more nearly comparable, due to a difference in the length of frames. On 30s warp, the range in sides per spinner is from 8 and 10 up to 21, the latter figure being reported by Mill No. 19, which uses special hands for cleaning. On filling the range is from 8 to 22 sides per spinner, the high figure being reported by Mill No. 14, where special hands are used for cleaning.

There is quite a notable variation in the number of spindles assigned to doffers, as well as in the size of section men's and oilers' and banders' jobs.

The foregoing comments have been made for the purpose of indicating general variations and practices. The reader will prefer to study the individual lay-outs in the tables carefully for himself.

It should be pointed out, however, that this information is not intended to be conclusive. It reveals clearly, we believe, the differences that exist among mills in this group, not only as to practices but as to results; and it shows, as accurately as possible, the major reasons for most of the differences in results, by giving the contributory details. Its chief interest is in the fact that it reflects actual, operating conditions and practices, and, in doing so, reveals so many differences in methods and results.

It is a rather generally known fact that there are in the South several mills exceeding even the highest roll speeds shown in the report. It must therefore be clearly understood that the mills included in the survey were selected at random; in fact, an invitation to some of the higher-speed mills to participate in the survey met with no response.

Increase of Raw Commodity Prices Sure Indication of Revival, Says Harvard Professor.

A sustained rise in raw commodity prices, if not accompanied by shin-plaster inflation, will be one of the surest indications of a real revival of business prosperity, according to Dr. M. T. Copeland, of the Harvard Business School, Cambridge, Mass.

This statement was made in connection with the appearance of a new bulletin on "Raw Commodity Prices in Relation to General Business Conditions," by Dr. Copeland, issued by the Harvard Business School, revealing a searching analysis of raw material conditions as an important factor in the present business situation.

The study covers thirteen commodities:—copper, lead, zinc, tin, silver, petroleum, sugar, rubber, coffee, silk, cotton, wool, and wheat. The analysis of each commodity covers world production, movement, stocks, and prices, during the period from 1922 to 1932, for the purpose of ascertaining when and where maladjustments occurred, and their major effects. The market value of these commodities in 1929 was over $15,000,000,000.

As a result of this analysis, Dr. Copeland concludes that international war debts have been a secondary matter in comparison with the drop in prices of such commodities as rubber, tin, wheat, and wool, in upsetting international exchange and in intensifying the depression.

It is found, furthermore, that in the world markets, prices of all these raw materials except copper and cotton had been weakening for several years prior to 1929; that the recession in business following the break in the stock market in October, 1929, was sufficient to upset a weak commodity price structure; that the drop in commodity values which followed was a major factor in causing the collapse in credit which culminated in the "bank holiday"; and that instead of expecting a stabilization of prices in the future, governmental and business policies should be fashioned with a view to encountering recurring changes in price levels.

Dr. Copeland points out, also, that the various schemes for remedying the condition of sugar, tin, copper, coffee, silk, rubber, cotton, wheat, and other producers by restrictive agreements or control measures all have been failures, and stresses the ineffectiveness of any one of the many proposed economic idols to stem the time of a major depression.

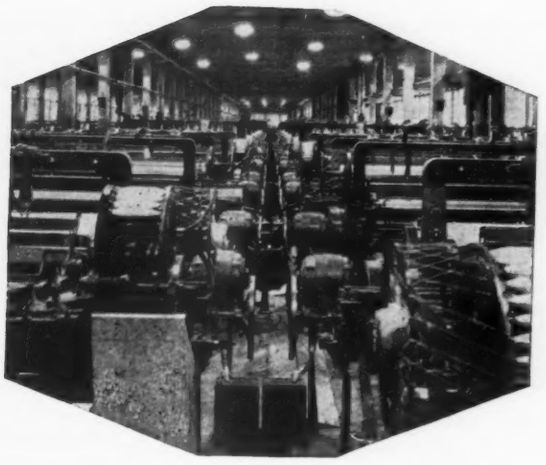
New Selling Arrangement.

Announcement is made of an agreement between the Pittsburgh Equitable Meter Company of Pittsburgh, Pa., and Peacock Brothers, Limited, of Montreal, Quebec, Canada, whereby the latter named concern will manufacture and sell the products of the Pittsburgh company in Canada.

Peacock Brothers, Limited, are well known throughout the Dominion, having been engaged in the manufacturing business for thirty-five years. Their factory in Montreal is most complete, including modern brass and iron foundries. Among the list of products now manufactured and distributed by this company are valves, compressors and pumps.

For a number of years, Peacock Brothers, Limited, have manufactured and sold Nordstrom lubricated plug valves under license from the Merco Nordstrom Valve Company—a subsidiary of the Pittsburgh Equitable Meter Company. This new agreement enables the Canadian firm to increase its manufacturing operations and extend its selling efforts to other fields, through the production of the well known Emco line of gas meters, regulators and accessories and Pittsburgh water meters and allied appliances.

Motor Drives for Looms



RECENTLY a number of readers requested articles discussing individual and group drive in the weave room. The accompanying discussion is presented in response to this request. A large part of the article is based on answers to a questionnaire made by mill men operating more than 20,000 looms on both individual and group drive.

In an early issue will appear a discussion of the group drive, its proper maintenance and latest developments. We feel that this presentation of the two methods of driving looms will be of general interest . . . . . .

By H. W. Reding

Westinghouse Elec. & Mfg. Co.

WHAT are the economics of drives for looms? How does the individual motor drive compare with group drive as to cost, maintenance, power consumption, production and general satisfaction? These questions have been asked by readers of COTTON. The discussion which follows is based on a large accumulation of data on the subject, and this has been recently augmented by information supplied by various mill officials, whose answers were given based on experience with a total of 10,596 looms on group drive and 10,938 looms equipped with individual motors. We shall therefore compare group driven looms with looms driven by individual motors. It is assumed that electric power is used in each case.

Power Consumption.

The principal factors which determine power consumption are: 1, Efficiency of the motors; 2, efficiency of the mechanical connection between motor and loom; and 3, speed of the loom.

It is of course well known that the efficiency of a typical group drive motor is higher than that of a small motor for individual drive. This difference, however, is not so great as is sometimes imagined. The efficiency of a typical individual motor of modern design at an average loading will be from 81 to 83 per cent. The efficiency at average load of a properly applied group drive motor will range from 89 to 91 per cent. For purposes of comparison we shall assume efficiencies of 82 per cent and 90 per cent respectively.

The efficiency of the mechanical connection varies widely depending on many factors. For individual drive it is customary to drive from a pinion on the motor shaft to a ring gear on the loom. The efficiency of this gear drive is quite constant at about 96 per cent. The loss in shafting used with group drive depends upon the lay-out of shafting, the type and condition of bearings, and the attention paid to the maintenance of the equipment. One series of tests on 15 typical groups in several mills shows that the power loss in shafting varied from 11 to 47 per cent. Of this series of 15 tests only two tests failed to show a loss out of the range between 20 per cent and 30 per cent. The average of the entire group was 26 per cent loss. Another series of tests on 10 groups in one well-run mill shows a total of 866-hp. output from the 10 motors to drive the entire load and a total of 232-hp. output with all of the belts on the loose pulleys. This is a loss of 26.7 per cent.

It must be kept in mind that these tests do not reveal the full load loss in transmission. They show only the loss at no load. Therefore it seems conservative to assume an average loss in shafting of 25 per cent.

The effect of loom speed is one frequently overlooked when considering power consumption. A loom driven by a motor through a gear runs at a practically fixed speed. The belt driven loom varies in speed depending on the weather and the condition of the belts. The practical result is that the motor driven loom runs at a higher average speed.

One test shows a power input to the individual motor of .5-hp. to drive a certain loom at 160 picks per minute, and an input of .567-hp. to drive the same loom at 165 picks per minute. This is an increase of 13.5 per cent in power for a 3.2 per cent increase in speed. A test on another loom shows a power input at 160 picks per minute of .43-hp., and of .50-hp. at 166 picks per minute. Very frequently the total power per loom is less for group drive than for individual drive, and if the increased speed is overlooked this fact is attributed to a very low efficiency on the small individual motor.

Based on the data set forth, let us compare power consumption of group and individually driven looms. Let us assume that a certain loom requires .35-hp. to drive it at a speed of 160 picks per minute. In a group drive with 25 per cent shafting loss and 10 per cent

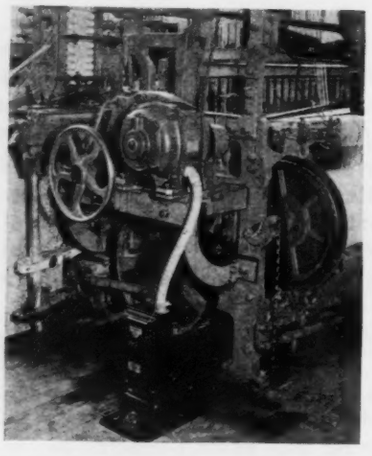
motor loss the power input to the motor for this one loom will be .518-hp. If we assume an individual motor drive on the same loom the power loss will be 4 per cent in gearing and 18 per cent in the motor, and the power input to the motor at the same speed will be .445-hp.; a saving of .073-hp. or .0545-kw. per loom.

If now the speed of the individually driven loom is increased by about 3.5 per cent or to 166 picks per minute, the power required will increase to about .518-hp. or in other words will be practically the same as the power taken by the group driven loom.

Maintenance Cost.

There is little to be said about maintenance of belting and shafting. Practically every mill man knows the requirements. The upkeep of individual motors involves lubrication of motors, inspection of switches and the occasional repair of a motor. The figures of one well-managed mill operating both belt driven and motor driven looms are interesting. This mill reports that maintenance on the group motors and shafting—covering burned-out bearings, pulleys, shafting, counter belts, dressing, and oiling shaft, to be 26 cents per loom per year; and on individual driving equipment—covering fuses, switches, gears, keys, motor burn-outs, and oiling, to be 18 cents per loom per year. Other mills, giving no comparative figures as to maintenance, report maintenance costs at the rate of a few cents per loom per year.

The failure of individual motors sometimes assumes importance far beyond its actual seriousness. One mill operating several thousand individual loom motors reports burned-out motors at the rate of 0.63 motor per year per 1,000 motors in operation. Another mill with more than 1,000 motors in service reports burned-out motors at the rate of 0.45 motor per year per 1,000 motors in service. Still another reports 3 motors burned out in 6 years of day and night service.



A modern individual drive motor and switch . . .

From this it is seen that the cost of maintenance of individual motors is small, while from various sources it is reported as being less than that of group driving equipment.

General Satisfaction.

There are a number of important factors which require consideration and which cannot easily be evaluated.

About half of the belt-driven looms at present are driven from overhead shafting. The oil drip and dirt coming from this overhead transmission has a direct bearing on the production of seconds. The loss attributable to this is a direct charge against overhead shafting which disappears when looms are belted from below or when driven by individual motors.

Another factor of importance is that of lighting. One mill reports the use of 300-watt lamps over a weave room belted from below and 400-watt lamps on the same spacing for the room with overhead obstruction. In addition to this difference in connected load, the lamps on the lower floor must unquestionably be burned more hours, particularly down the center part of the room. This difference in lighting could easily make a difference in lighting cost per loom per year of from $2.00 to $3.00 for day run alone; and for day and night operation this would be in the order of $5.00 to $7.00 per loom per year. As in the case of oil drip and dirt, this is a direct charge against overhead shafting as compared with looms belted from below or when driven by individual motors.

Production.

In spite of increased artificial lighting, vision is less acute with the overhead obstruction and more defects can escape the weaver's eye. The objections of oil drip, dirt, decreased light and more seconds are brought out by various men who were comparing a weave room with overhead shafting and one without.

There is also the matter of flexibility of lay-out and operation. Looms with individual motors may be placed as desired without the limitations which accompany a lay-out of shafting and belts. They may also be operated singly or in small groups at normal efficiency. Under conditions of small orders for quick shipment this may result in reduced power consumption as compared with a system in which a large motor and the shafting must be run if any loom is to operate.

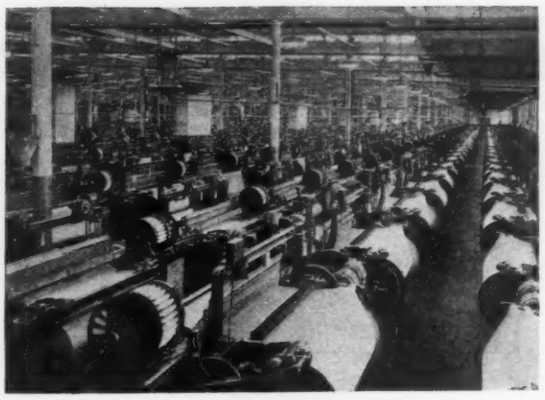
Various claims have been made for increased production of individual drives, but this discussion will be limited to data recently secured from mills operating both systems.

To illustrate the possibilities we shall first mention a speed check on a group of 18 belt-driven looms. Eight of these were of one type (and supposedly of the same speed). The maximum speed was 142 picks per minute, the minimum speed 134 picks and the average 137.5 picks. The other ten looms were of a different type and showed speeds of 180 maximum, 172 minimum and 174.2 average. If all of these had been operated at the maximum speeds as shown, there would have been an increased production of 3.3 per cent.

Another mill reports that the speed of belt-driven looms varies from 5 to 10 picks per minute. One mill operating both systems reports 3 per cent more production for individual drive, and another mill reports 2½ to 5 per cent. Still another mill found an increased production of 5 per cent.

From these figures it seems conservative to conclude that individual drive can increase production 3 to 4 per cent as compared with a carefully operated group drive, and 5 per cent or more if less attention is given to the upkeep of the transmission equipment. If we may assume a single shift production of 13,000 yards per loom per year, this increased production will mean some 400 to 650 additional yards of cloth from each loom.

In connection with this point, the comment of a practical mill manager is interesting: "With reference to belt-driven looms, of course there is an element of slippage at all times; however, starting and stopping magnifies this element. Therefore, a good running weave shop, in my opinion, will have less lossage on account of belt slippage than a bad running weave shop would have." Another mill manager stated that, "in a *well run* weave room, individual drive will give from 2 to 4 more picks per loom per minute. I believe in an average mill the difference would be even more."



A recently equipped indivdually-driven weave room in a southern mill . . . . . .

To obtain up-to-date information on costs, data were collected on costs of jobs installed within the past year or two. Since there were available no records of new mechanical transmission installations, an accurate estimate was obtained based on present-day prices.

First Cost.

For purposes of comparison we shall assume a group drive installation for 135 looms driven by a 50-hp., 870 r.p.m. motor. Hanger bearings are to be of the ring-oiled type and the mechanical transmission includes all pulleys, shafting, hangers and accessories installed. It also includes the necessary loom, counter and motor belting.

For individual drive we shall assume a ½-hp., 1,800 r.p.m. motor with switch, pedestal, pinion, etc., with installation cost.

Group Drive

Cost per loom, of transmission and belting	$18.50
Cost per loom, of motor including wiring and installation	7.75
Total	$26.25

Individual Motor Drive

Individual motor with switch, pedestal, pinion and wiring completely installed	$52.50
Difference	$26.25

This analysis takes into consideration only the power equipment. It assumes a moderate sized group, using a 50-hp. motor, whereas the tendency in group drives is to use one relatively small motor per shaft with a short center drive. This will raise the cost per loom for the group drive equipment.

In conclusion, we have covered the items of power consumption, maintenance, lighting and oil drip, flexibility, first cost, and production. The discussions have been based largely upon evidence given by mill men as to their experience with both systems of drive as at present installed and operated. It would appear from this information that individual drive involves, on the one hand, an increased first cost; and on the other hand, the advantages of greater production, greater flexibility and decreased maintenance; and that, compared with looms driven in groups from overhead shafting, the results of decreased seconds, and better lighting. The exact evaluation of these factors must be left to mill operators to set for themselves.

The best possible summary is contained in the following quotations from six outstanding mill managers who have commented on the subject and all of whom have had personal experience with both forms of drive. Only one expresses any doubt as to the complete economic desirability of the individual drive.

"At the moment, my own thinking is that the mill that stays on fairly standard constructions would save power by having a group drive. I would have them driven from a shaft using a Tex-rope drive, I would have all shafting put in roller bearings and I would have not over 48 looms or approximately that, on one motor".

"In my opinion, individual driven looms are better in every respect; you can get better efficiency, less seconds, less oil and dirt, lower labor cost and lower supply cost".

"The small motor is not efficient but even with its inefficiency it is the only drive for a loom. The increase in loom production alone more than compensating for its inefficiency".

"Taking all things into consideration, we are very much pleased with the individual drives on our looms and would not install any looms with any other type of drive".

"We will say that unquestionably we prefer individual driven looms to the group drive".

"We find that the individual drive is much more satisfactory in every way, with 2½ to 5 per cent more production".

Davison Issues New Edition of "Cordage Twine and Duck Trades."

Davison Publishing Company, 50 Union Square, New York City, have issued the 26th edition of "Davison's Cordage, Twine and Duck Trades," in the 1933-1934 edition. It contains many valuable features, is handsomely bound in quality cloth, and thumb index. It reports the following manufacturers in detail: Cordage, twine, webbing, yarn and thread (linen, flax and hemp), mop makers, packing sash cords, tire fabric, wicking, tow, netting, fish line, banding, asbestos, bagging, woven belting, cable cord, clothes lines, crash and towel, fire hose and many other similar lines.

It shows capital, date of incorporation, officers, machinery, product made, number of employees and selling agents. In addition there are revised lists covering cordage and twine jobbers, woodenware jobbers, hardware jobbers, awning, tent and sail makers, waste manufacturers and dealers, fiber brokers, fabric bag makers, manufacturers' agents, ship chandlers and special yarn dealers. The price is $3.00 per copy. Copies may be obtained through COTTON's book department or direct from the publishers.

Problems of Figuring New Styles in a Fancy Weaving Mill

By Newton G. Hardie

THE all-important item of figuring the "take-up" or contraction of yarns in fancy goods is thoroughly discussed in this description of the various ways in which a fancy goods mill receives its orders.

Helpful ideas, based upon practical experience, are given as to the best methods of handling orders in a mill of this type. . .

AN ORDER taken by a fancy mill is usually placed in one of three ways: *First*, where the order is taken with specifications as to width, warp and filling construction, warp and filling yarns (giving size and whether combed or carded) also the approximate harness required to make the pattern; *second*, where the mill has made for the buyer either a head end or a sample piece of the cloth desired and the sale is based on these; and *third*, where the buyer submits to the mill a clipping, swatch or sample of the cloth desired and the sale is made "same as samples submitted", with no mention of yarn construction, etc.

The first method of selling is not used extensively unless the buyer is familiar with the quality of that particular mill's goods and its reputation for making all deliveries on time. This method is best adapted where there have been past transactions between the mill and the buyer, for then the buyer knows the quality he may expect as well as the dependence he can place in the mill delivery promises, and the mill from past experience knows the buyer's requirements, and are therefore in a better position to quote accurately on the cloth in question.

It might be well to add at this point that it certainly pays a fancy mill to have a good reputation in regard to living up to its deliveries, for with everything else being equal it will generally get the business over its competitors who are not so careful about meeting all delivery obligations. In the writer's own experience, he has known of times when buyers would pay as much as three to five cents a yard premium for an especially quick and large percentage weekly delivery. Naturally, when the buyer is up against it for a quick delivery, he wants to place this order with a mill in which he can put implicit faith in its assurance of living up to the letter of the contract.

The second method of selling is by far the best for the mill, in that they have actually made the cloth in question before the order is placed. By showing the customer a head end or sample piece before definitely accepting an order, the mill has a chance to sell on the basis of the quality, appearance, etc., as shown by this head end or sample piece. This method also gives the mill the opportunity to thoroughly analyze the cloth for the actual percentage of the different yarns contained.

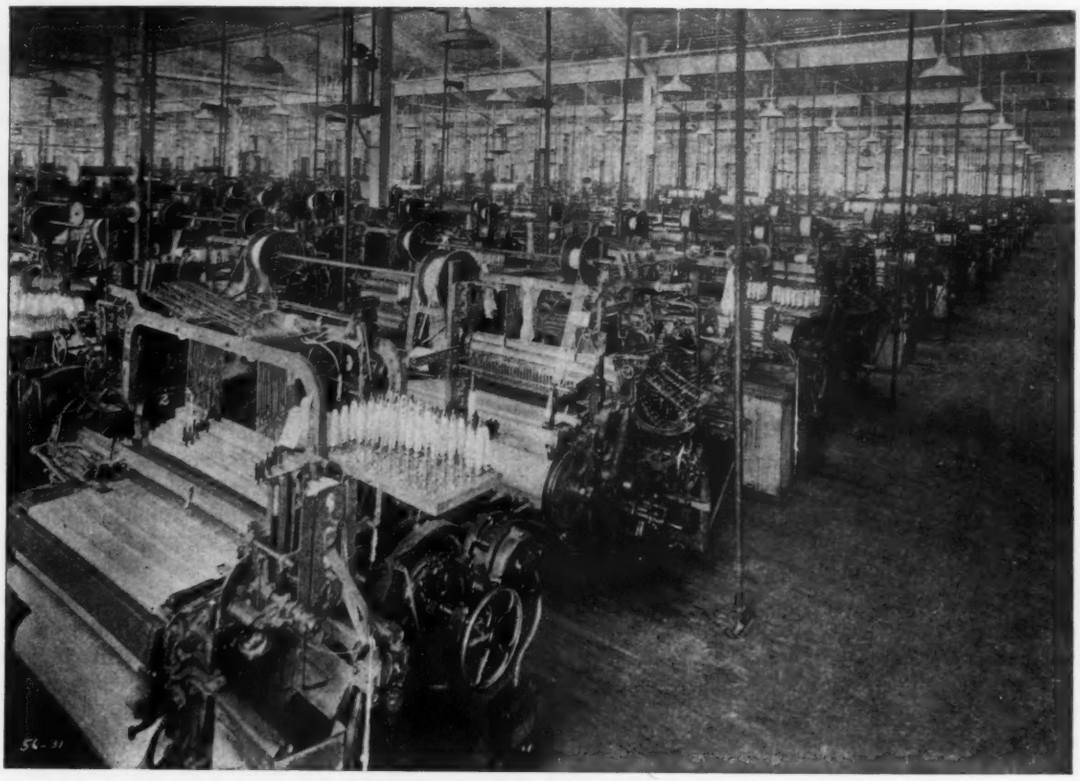
Nothing is more important in determining the actual cost of a certain cloth than the correct weight per yard of each yarn that it contains. The question of "Take-up," or contraction, is one of vital importance, for it varies so much from pattern to pattern that no guess work should be permitted when figuring costs. The filling contraction can be correctly ascertained from the reed spread. For example, in a 40-inch cloth the reed spread is 42 inches, so the percentage of filling contraction would be five per cent. Suppose, though, due to the weave construction and yarns, the reed spread had to be 44 inches. Then the filling contraction would be 10 per cent, or twice as much as on the 42-inch reed spread. This five per cent business would cut an important figure in the cost of most fancy patterns.

Figuring the Warp "Take-Up"

Figuring the warp contraction or "take-up" requires a little more time than figuring the filling. A good way to get this contraction accurately is to cut out, say, 10 inches of cloth and unravel several warp ends. Next stretch these ends until you have taken out all the kinks due to "take-up". Then measure this length. Care should be exercised to see that you get all of the contraction due to weaving out of the yarn but do not stretch the yarn beyond this point, as you will then be over-estimating the contraction. Anyone accustomed to doing this work soon learns the touch of just when the "take-up" is all out and when actual stretching of the yarn begins.

Suppose 10 inches of cloth when unraveled gives 11 inches of warp yarn. Then the warp contraction would be 10 per cent, whereas, if the 10 inches gave 12 inches of unraveled yarn the contraction would be 20 per cent. If there is more than one warp being used, this contraction should be figured for each beam as the "take-up" on the different beams may vary considerably.

In patterns which contain yarns made of two or more different yarns twisted together, care must be exercised not only in getting the actual weaving contraction, but also in securing the correct percentage by weight of each single yarn that goes to make up the plied yarn. For instance, suppose the filling in the pattern under consideration is a cotton-and-rayon ratine having two ends of 50s combed yarns for the ground, one end of 150 denier rayon for the loop end, and one end of 40s combed reverse twist for the binder. The rayon end, being the loop end, will have



A fancy goods mill on style fabrics such as rayon-and-cotton combinations must adhere to quality and live up to promises on delivery . . . . . .

considerably more "take-up" than either the two ends of 50s or the one end of 40s. The actual contraction in each yarn can be found by cutting, say, 10 inches of the plied yarn, then unraveling each single yarn and measuring its percentage of "take-up" as in the case of warp yarns. This method requires very little time and is fairly accurate. A more accurate way of determining the contraction is to run 120 yards of one yarn on a spool or tube and check the number of yards of plied yarn that this will make. If this 120 yards ran out when 100 yards of finished yarn was made, then you could figure the twisting contraction, which would be 20 per cent. By checking each yarn in this way the exact contraction for each yarn can be secured. This method is especially good where the finished yarn does not repeat its pattern every few inches.

The third method of selling, where the mill is to duplicate the swatch submitted, is the most dangerous of the three for the mill. Should the mill see and make allowances for all of the peculiarities in the pattern, everything is okeh, but if they overlooked any of these they may find themselves in difficulties varying from a small allowance to a complete cancellation of the contract.

If the sample submitted is a finished swatch, the mill must be careful always to bear this in mind and make the necessary allowances for the finishing operation and its effect on the cloth, such as removal of sizing material, contraction and "take-up" as compared with the gray or unfinished cloth, and the possible addition of weight in finishing. Particular attention should be paid to the direction and amount of twist in the yarns. Nothing should be taken for granted in analyzing a swatch, no matter how simple it looks, for frequently a pattern simple in appearance causes greater trouble than one which appears more complicated.

More Helpful Suggestions

In figuring cost on a pattern that the mill has never run, it is very essential that someone representing the mill know how this pattern will weave; that is, what production can be expected, the percentage of seconds and short lengths there will be, and how many looms a weaver can run, and how many looms a fixer can run. Naturally every mill would like to play safe and figure on the long side when it comes to quoting costs, but competition is so keen that mills generally have to figure on a mighty close basis, and here is where good judgment in taking this order and passing up that one plays an important part in the financial statement of the mill. For example, suppose the mill has under consideration two separate orders, both patterns showing an equal profit when figured on the same basis of production, etc. But, suppose in actual running the mill gets five per cent more production and two per cent less seconds on one pattern than on the other. This only goes to show how very important it is to have someone figuring costs who knows the manufacturing end. Where a mill has a cost man in the office he should always consult with the superintendent before quoting on a pattern in a different range from those to which the mill is accustomed to manufacture.

STA Celebrates Its 25th Birthday with Successful Meeting

THE Southern Textile Association is twenty-five years old! The 25th annual convention of this organization of southern mill superintendents and overseers, held at Charlotte, N. C., on Friday and Saturday, May 26th and 27th, appropriately celebrated the silver anniversary of the association. The program, splendidly arranged and executed, was featured by interesting accounts of the organization's growth since its formation in 1908 at Charlotte; and was distinguished by the appearance on the program of two outstanding industrialists: T. M. Marchant, president and treasurer, Victor-Monaghan Company, Greenville, S. C., who was recently made president of the American Cotton Manufacturers Association, and W. S. Lee, vice-president and chief engineer of the Duke Power Company, an organization which has led in the development of hydro-electric power in the Piedmont section and has contributed to the expansion and success of the southern textile industry.

Taking the organization back, on its 25th birthday, to the place of its origin, Charlotte, proved to be an excellent idea, both in sentiment and practical value, since an outstanding attendance was attracted. The character of the program plus the exceptionally pleasurable entertainment features as arranged by the Charlotte Textile Club and other interests of Charlotte, made the occasion an unquestioned success.

Left, F. K. Petrea, retiring president; right, H. H. Iler, the new president . . . . . .

The theme of celebration of the 25th milestone in the organization's life was featured in the address of the president, Frank K. Petrea, superintendent, Swift Mfg. Co., Columbus, Ga., and in the program of the banquet on Friday evening, when a number of the past presidents of the organization spoke in reminiscent vein, and David Clark, editor of the *Textile Bulletin*, Charlotte, who, with George S. Escott, late editor of the *Mill News*, and E. E. Bowen organized the association as an outgrowth of the Spray Textile Overseers Association, traced for record purposes the growth of the organization to its present outstanding position in the textile association field.

Officers to continue the association's work into the next year were chosen at Charlotte. Harry H. Iler, chief engineer and master mechanic of the Union Bleachery, Greenville, S. C., and son of James F. Iler, one of the pioneer superintendents of the South, was elected as president succeeding Mr. Petrea. Culver Batson, manager and superintendent, Consolidated Textile Corp., Lynchburg, Va., was made vice-president; and John A. McFalls, superintendent, Mooresville (N. C.) Cotton Mills, was made chairman of the board of governors, to which four new members were added for three-year terms; Walter Dillard, Jr., superintendent, Sibley Mfg. Co., Augusta, Ga.; W. G. Young, power superintendent, Wiscassett Mill, Albemarle, N. C.; Lyman A. Hamrick, general superintendent of the Hamrick Mills, Gaffney, S. C.; and D. F. Short, overseer of weaving, Consolidated Textile Corporation, Lynchburg, Va. Marshall Dilling, secretary and superintendent, A. M. Smyre Mfg. Co., Gastonia, N. C., was re-elected as executive secretary.

At a brief meeting of the association's research body, The Arkwrights, Inc., all officers were re-elected, including Carl R. Harris, president, T. W. Mullen, vice-president, and D. H. Hill, Jr., secretary and treasurer. Mr. Hill, who was drafted into the position of secretary-treasurer of the Southern Textile Association during the past year, was highly commended for his work in handling the organization's affairs, and was largely responsible for the arrangement and execution of the successful convention program.

On Thursday evening preceding the convention, the associate members division held its annual dinner, at which Emmet Steger, of Sherwin-Williams Company, Charlotte, was elected chairman succeeding L. W. Thomason, of N. Y. & N. J. Lubricant Co., and I. E. Wynne, of Universal Winding Company, was made vice general chairman succeeding Mr. Steger. Junius M. Smith, of the *Textile Bulletin*, was re-elected secretary-treasurer of the division.

The 25th annual convention of the association was opened on Friday morning, May 26th. W. M. McLaurine, secretary-treasurer of the American Cotton Manufacturers Association, welcomed the delegates, and H. H. Iler responded on behalf of the visitors. Then followed the annual address of the president, Frank K. Petrea, who presented in interesting and inspiring fashion some comments as to the early meetings and history of the organization, as indicating the sound foundation upon which the association had been established, and referring to some of its outstanding accomplishments. These included the responsibility of organizing and sponsoring the Southern Textile Exposition in Greenville; the development of the discussion or sectional meeting plan for round-table discussion of problems in the various mill departments; and the establishment of prac-

tical research through The Arkwrights, Inc.

Mr. Petrea also traced briefly the growth of the textile industry, showing that in 1830 there were in this country 795 mills with an average per mill of 1,572 spindles and 41 looms per mill. He showed also that in 1932, cotton manufacturing continued to be the dominant factor in textile manufacturing, consuming 2,464,000,000 pounds of raw material or 84.2 per cent of the total raw fiber consumed in all textile industries; with 31,442,174 cotton spindles compared to 4,153,400 on woolen and worsted, and 3,189,665 on silk—and consuming 60 per cent of the total horsepower used in the textile industry.

Culver Batson

T. M. Marchant

J. A. McFalls

The speaker quoted the axiom, "the final state of improvement is never reached in any business, machine or person", and urged the members to continue their intelligent investigation and curiosity concerning the problems of their business. He particularly urged more consideration of the human problems of industry, including character building, improving morale, etc., among the operating executives and operatives.

"Changing Conditions in the Textile Industry."

A leading feature of the program was the concluding address at the Friday morning session on "Changing Conditions in the Textile Industry", by T. M. Marchant. Mr. Marchant reached the convention directly from a series of conferences with government officials and mill men in Washington, relating to current proposed plans for the regulation and control of industry, and presented for the association members in a clear and direct manner an outline of some of the proposed and established legislation as affecting textile manufacturing.

He began with a tribute to southern cotton mill labor, who, in the face of reduced hours of operation and income, have with commonsense and foresight contented themselves in a mutual effort to solve the serious mill problems which have grown out of a reduction in consumption of cotton cloth and a world-wide depression. He commented upon the fact that within recent years the southern mills have escaped much serious legislative encroachment upon their rights, citing as an example of unwise legislation the case of Massachusetts, which has lost 6,000,000 of the total decrease of 7,000,000 spindles in this country. Mr. Marchant emphasized that "foolish labor legislation, instead of helping labor, absolutely ruined labor by bankrupting the mills and running them out of Massachusetts. Nothing is more essential to the operatives than a livelihood. There is no legislation that can help the operative while it at the same time deprives him of the means of livelihood."

Mr. Marchant covered the subject of "child labor in cotton mills" by citing figures to show that all southern states forbid the employment of children at any time under 14 years of age; and that those between 14 and 16 are required by law to have a permit permitting them to work during certain hours. He stated that, "Many years ago I went on record as favoring the discontinuance of employing children in cotton mills between 14 and 16 years of age, and as head of the Victor-Monaghan Company, operating five plants and employing approximately 3,000 workers, I am happy to tell you today that there is not a single person on the payroll of this company under 16 years of age. You gentlemen can be of much help to the executive heads of mills, as you are largely responsible for the management inside the plants, if you will only realize that child labor after all is the most expensive, and work out a policy which will eliminate from the mills all children under 16 years of age. Actually mill executives would prefer not to employ children between 14 and 16 years of age, even though permitted by law to do so."

Mr. Marchant referred to the strangling influence of over-production, quoting pertinently from an address which he made in 1930, as follows: "There has never been a time in the history of any industry when overproduction was not a curse, and it should be recognized as the greatest outstanding evil in industry. How long shall we continue to operate our plants on an overtime schedule, producing more goods than can be sold, except at a loss? In the future, there is one of two courses to follow: First, to co-operate like business men, bring production in line with consumption, which would guarantee to you and your stockholders a fair return, putting you in position to pay higher wages to your employees and lift this industry out of what is generally known as the 'low wage' class. Or shall we disregard entirely all of the laws of supply and demand, continuing to operate our plants on full time schedule both day and night, losing all opportunity to secure a reasonable profit and stabilize the industry, which our stockholders and the business world in general should demand."

The current and pending legislation of a national character, involving farm relief and regulation of industry, were discussed next by Mr. Marchant. He outlined the program of the Cotton-Textile Institute, placed before President Roosevelt on May 10th, calling for a recommendation that the hours of labor in cotton mills shall not exceed 40 hours per week and that the running time for productive machinery shall not exceed two shifts of 40 hours per week—the plan to be placed before the president to determine what steps should be taken to insure its adoption when two-thirds of the industry's spindles had endorsed the recommendation. Mr. Marchant announced that more than two-thirds of the spindles had endorsed it. He pointed out its provisions that "a way has been

left open, on recommendation of two-thirds of the industry, to increase or decrease the working time should it appear necessary for serving the best interests of the public."

Mr. Marchant described the proposed workings of the farm relief bill, as relating to cotton manufacturing, pointing out that the farm bill, "which has already become a law, brings cotton manufacturers and manufacturers of several other agricultural commodities under strict surveillance of the government. Its grant of authority to license cotton mills and to make agreements with them, free of restraint of the anti-trust laws, gives most sanguine promise of eliminating the relentless competition that has nearly destroyed the cotton-textile industry. Furthermore, we have every reason to believe that this grant of authority will be utilized, because the president in his recent speeches has emphatically declared that destructive competition is contrary to public interest."

Buffet Luncheon and Golf Contests.

Following the morning session, the delegates were guests of the Charlotte Textile Club and allied interests in Charlotte at a buffet luncheon at the Myers Park Country Club. In the afternoon, various forms of entertainment were scheduled, including a horse-shoe pitching contest, a contest of driving a golf ball for those who had never played golf, and a regulation handicap golf tournament. The Charlotte Textile Club presented to the association a handsome loving cup as a permanent golf trophy, this being won at Charlotte for the first year by Walter Dillard, Jr., of Augusta. Each winner's name is to be engraved on the cup, and it is to be awarded at each annual meeting, it being necessary to win three successive times for permanent possession by a member. R. L. Jordan, of the Kendall Mills, Paw Creek, N. C., and F. Gordon Cobb, general manager, Lancaster (S. C.) Cotton Mills, were winners of other prizes for mill men. John Walker, of Walker Mfg. Co., Philadelphia, and Hughes L. Siever, and Paul F. Haddock, of Charlotte, won other prizes given to associate members. The award of these prizes was made at the banquet on Friday evening by William B. Uhler, of Borne Scrymser Co., who operated the tournament.

The banquet on Friday evening was a delightful occasion. Splendid musical and dancing entertainment followed the meal, and two blackface comedians presented a humorous dialog sketch written by D. H. Hill, Jr. President Petrea had invited all past presidents to attend, and a number of these—including Frank E. Heymer, A. M. Dixon, F. G. Cobb, H. H. Boyd, Marshall Dilling, W. H. Gibson, Jr., J. O. Corn, and T. W. Mullen, spoke briefly. The retiring president's medal was presented to Mr. Petrea by Culver Batson.

The Saturday morning session was opened with a brief report by Marshall Dilling as to the financial affairs of the organization. He stated that within recent months great progress had been made in reducing the deficit in the treasury and plans were under way to establish the organization upon a more solid foundation.

W. S. Lee, vice-president and chief engineer of the Duke Power Company, was the chief speaker of the session. Mr. Lee spoke informally, referring to the early days of the association and the southern textile mills, and their relation to the development of hydro- electric power in which he had played so conspicuous a part. He urged the operating executives to study their jobs, secure and utilize facts about their business; and particularly referred to the importance of knowledge and definite information under the proposed plans of industry regulation under government supervision.

Mr. Lee declared that in his opinion, under the changed circumstances which will result from an arrangement of co-operation between industry and government in the operation of industry, that the competition between plants, and the competition between men on jobs, will be greater than ever before. He urged the mill men to analyze their problems with greater care and keep accurate records.

Following the election of officers, the adoption of resolutions and announcements, the meeting was adjourned.

New Institute Directors.

At a recent meeting of the executive committee of the Cotton-Textile Institute, Captain A. M. Fairley of Laurinburg, N. C., chairman of the carded yarn group, was elected to membership on the Institute's board of directors. Other mill executives elected to the board included W. W. Coriell, president, Nashawena Mills, New Bedford, Mass., Gordon Harrower, treasurer, Wauregan-Quinebaug Mills, Danielson, Conn., and Ralph Perkins, treasurer, Pilgrim Mills, Fall River, Mass., and Queen City Cotton Company, Burlington, Vermont.

On May 20, George A. Sloan, president, Cotton-Textile Institute, announced that the following mills had become members of the Institute during the preceding week:

Barnard Mfg. Co., Fall River, Mass.; Interlaken Mills, Providence, R. I.; Potomska Mills, New Bedford, Mass.; Maverick Mills, East Boston, Mass.; White Mills of New Hampshire, Peterboro, N. H.; White Bros., Inc., Winchendon, Mass.; and Falls Company, Winchendon, Mass. In addition, the Santee Mills of Orangeburg, S. C., rejoined the Institute.

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News Items from Georgia Tech Textile Department.

C. A. Jones, director, A. French Textile School, Georgia School of Technology, Atlanta, Ga., announces that Messrs. Williams and Schroder, of the General Dyestuff Corporation, met recently with the students of the senior textile class. Mr. Williams made an interesting talk covering the application of naphthol colors, followed by practical machine demonstration. John C. Robertson, of the peroxide bleaching division, E. I. duPont de Nemours & Co., recently gave a talk to the students, discussing the use and application of peroxides in cotton bleaching. Messrs. Taylor and Viera, of the dyestuffs division of duPont, also spoke recently, with an interesting discussion by Mr. Viera on the use of vat colors in dyeing and printing.

WATER

As applied in finishing cotton piece goods . .

THIS begins a series of articles covering, in an interesting and practical way, the use of basic materials employed in the finishing of piece goods. These articles, of which this one on Water is the first, are especially recommended for careful study and use as reference. The latter part of this article presents an exceptionally interesting discussion of water in the various finishing processes, from a practical operations standpoint . . . . . .

By J. Andrew Clark
Chief Chemist, Dutchess Bleachery, Inc.

WITH most all operations of a finishing plant dependent on the quality and quantity of water available, this substance is of major importance in any consideration of the basic materials used in finishing. The majority of plants obtain their water supply from streams, creeks or rivers adjacent to them and ordinarily, these properties are determined within wide limits by the geography of the water-shed. The volume of water being dependent on the frequency of rainfall over the area and terrain of watershed, little can be done to increase the amount, other than by the erection of control dams along the upper reaches of the stream to minimize flood effects and thereby conserve all the water possible or by drilling wells as an auxiliary supply. The volume, moreover, fluctuates seasonally, the effect of which is more noticeable in those plants having small water storage. This fluctuation in volume also introduces changes in the quality of the water. River water is a mixture of surface and ground water with additions of any waste or sewage introduced. Heavy rains cause a change in the proportions of surface and ground water by increasing the amount of run-off. Gentle rains do little to increase the run-off, but do help to increase the ground water supply. This run-off mechanically carries along small particles of vegetable matter as well as eroded earth, which suspended in the water, gives rise to the turbid appearance. Coarse particles settle out in a very short time and if visible to the eye are known as sediment. The finer particles may range in size down to the colloidal, and the rate of settling diminishes with the size.

Photos, courtesy H. W. Butterworth & Sons Co.
Kiers, for boiling piece goods

The following table giving the relation between settling and particle size well illustrates the advisability of having a reasonably large retention period in the settling basin or water storage in order to reduce the amount of sediment before entering the mains.

Diam of Grain M.M.	Order of Magnitude	Hydrantic Subsiding Value i.e. Rate of Settling M. M. per Sec.	Time Required to Settle One Foot
10.	Gravel	1000.	0.3 Sec.
1.	Coarse Sand	100.	3.0 "
0.1	Fine Sand	8.	38.0 "
0.01	Silt	0.154	33.0 Min.
0.001	Size of Bacteria	0.00154	55.0 Hrs.
0.0001	Size of clay Pastiels	0.0000154	230.0 Days
0.00001	Size of colloidal Pastiels	0.000000154	63.0 Yrs.

(From "Water Works Practice Manual")

The flood period of the smaller rivers is usually short and while the turbidity may be high at that time, it usually subsides quickly, while during the remainder of the time, the turbidity will be low. The nature of this turbidity varies, moreover, with the flood period, being coarse at first and soon changing to a finer size. The term "Coefficient of Fineness" is used to describe this quality of the turbidity for technical purposes.

This suspended matter may be partly organic, clay, silica and iron oxides, and is usually yellowish brown in color. Ordinarily, the amounts are small, being within the range of 2-3 parts per million in quiet streams, but may rise as high as 10,000 parts per million in extreme cases when flood conditions are reached.

Waters flowing through, or draining swamps are often colored by the presence of tannates, gallates and organic acids of various kinds, which have been extracted from leaves, bark and decaying organic matter. In some waters, the color may be due to the presence of iron bicarbonate, while industrial wastes may also contribute to this.

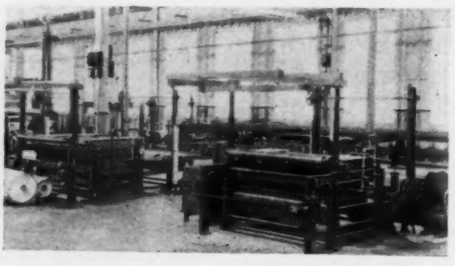
Falling through the air, water absorbs oxygen and carbon dioxide and in turn, percolates through the soil where it absorbs more of this latter substance and other organic acids from the decaying vegetation, while at the same time, most of the dissolved oxygen is consumed by the organic matter. The water then reaches the rock strata which consists mainly of complex mixtures of aluminum, calcium, magnesium, potassium and sodium silicates. Calcium and magnesium are dissolved as bicarbonates, while the potassium and sodium are dissolved as carbonates. This water, known as a primary ground water, is characterized by the presence of

small amounts of calcium and magnesium with relatively large amounts of potassium and sodium. These primary ground waters are capable of dissolving iron and carrying silica and aluminum oxides in colloidal suspension, which are extremely difficult to remove by filtration.

Hardness in Water.

When, however, this water flows through the large deposits of limestone scattered over the country, it acquires a content of calcium and magnesium bicarbonates by combination with the dissolved carbon dioxide. Gypsum salt, sulphur and iron deposits also influence the composition of the water.

Hardness is a term generally used to describe the condition of the water in relation to its content of calcium, magnesium and iron compounds, although originally, it was simply a measure of the amount of soap needed before a lather could be produced, thereby determining the soap destroying power. When the hardness is produced by bicarbonates of the metals, it is termed "temporary". The sulphates, nitrates and chlorides, however, cause the water to be known as "permanently" hard. Hardness, like turbidity, may vary considerably over a short space of time, but unlike the latter, changes are not visible and may be unsuspected until trouble occurs.



Atomizer, used for dampening before calendering . . . . . .

The bicarbonates of calcium and magnesium and iron constitute temporary hardness, a designation based on the fact that these compounds are decomposed into the insoluble carbonates on boiling and can be removed by filtration. The sulphates, nitrates and chlorides of calcium and magnesium are the main causes of permanent hardness. These materials are not decomposed by boiling, but can be converted into the carbonates by chemical treatment, rendered insoluble, following which they can be removed by filtration.

Many ground supplies contain relatively large amounts of iron and a little manganese. This water, allowed to stand in open basins, will usually deposit a good portion of these elements through liberation of carbon dioxide with the resultant precipitation of iron and manganese oxides. Water containing 0.3 parts per million ordinarily does not precipitate, causing little or no trouble and is generally satisfactory. More than 0.5 parts is considered unsatisfactory for textile purposes and, moreover, will support the growth of crenothrix, a bacterium which converts soluble ferrous hydroxide to an insoluble ferric compound, leaving it as a stringy brown jell. This bacterium grows in the dark and consequently flourishes in mains and covered reservoirs.

Relatively soft water occurs in New England, the upper Mississippi River basin, along the Atlantic coast and in the Rocky Mountain district. The limestone deposits of the middle Mississippi River basin cause excessively hard water, while the water near the coal fields may be polluted by mine drainage over a relatively large area.

These three qualities of water, then, turbidity, hardness and iron, are the main sources of trouble and irregularities in water for textile processing, and the relative amounts present in a given water determine the type of treatment necessary for correction. Soft waters, with a minimum of iron content usually require little or no treatment other than filtration for the removal of the turbidity. Mechanical filtration is sufficient and capable of reducing this to low limits and has an added advantage of processing the water with only a slight loss in pressure.

Mechanical filtration consists of passing water through graduated layers of quartz sand, supported on a gravel bed in closed steel shells which vary in size according to capacity, the larger sizes usually being installed in a horizontal position. They operate under pressure and offer only a slight resistance to the flow of water, the drop in pressure being approximately 2 to 5 pounds. The drop in pressure, however, is increased during operation by the removal of the turbidity which tends to clog the interstices of the sand. When this drop in pressure reaches an additional value of approximately 4 pounds across the filter, it becomes necessary to back wash, after which this unit can be returned to service. Filters of this type can only remove solids in suspension, and in some cases fail to do this satisfactorily with some waters, especially those containing colloidal silica.

If, now, a coagulent is added to the water before filtration, the turbidity and usually the color of the effluent is decreased. The use of coagulents is based on the hydrolosis of alum, aluminum sulphate or ferrous sulphate, to form small flocculent masses in the water which mechanically entrap the larger particles that cause turbidity, while also absorbing the colloidal particles as well as a major part of the color and industrial waste. The cost of filtering water with alum coagulation is approximately $5.50 per million gallons. Recent investigations and practice have demonstrated that this coagulation is most effective when controlled within definite limits of pH for a given water. The term "pH" is used simply as a measure to indicate the degree of acidity or alkalinity of the water.

Removing the Hardness

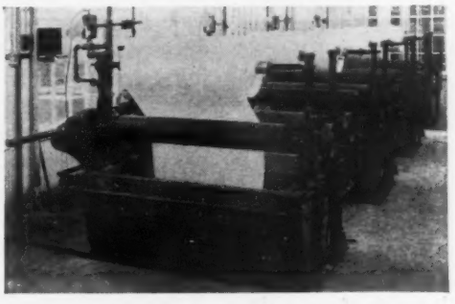
The removal of hardness has been effected in several ways and various methods are in use, depending on the nature of the raw water, the amount consumed, and the use for which intended. When moderate amounts of water are desired of maximum softness from moderately hard or relatively soft water, zeolite type of softening is almost universally used. Originally, the natural alkali zeolitic minerals were observed to have a reversible absorption of calcium and magnesium by which the two latter could be removed from water when percolating through a layer of the

zeolite. In time, the zeolite became inactive but could be regenerated with a strong brine, whereupon the cycle would be repeated and soft water again obtained.

Various complex synthetic compounds of aluminum silicates were prepared with more efficient exchange and renegeration rates while the natural zeolites were improved in some cases by chemical treatment. This softening process briefly, then, consists in passing a metered quantity of filtered raw water through a layer of zeolite at a controlled rate. Then, this volume of water having been softened, regeneration is conducted by flowing a definite amount of saturated brine through the equipment. This re-converts the calcium and magnesium zeolite to the original sodium compound, and after flushing out the system and thoroughly washing, the softening cycle can be repeated. Water of zero hardness is commonly claimed for this system and can be obtained with proper operation.

A natural water containing not more than 50 parts per million of hardness may be used for most textile purposes. Water containing up to 150 parts per million, however, is unsuitable and can be economically softened by the zeolite method; above this value, either the lime-soda ash method or a combination of this with the zeolite is commonly used. The older method of lime-soda ash softening has been modernized and the new process, consisting of first over-treating the water with lime, followed by a carbon dioxide treatment, removes more calcium and magnesium than before with a resultant lower residual hardness. A minimum hardness of 25 or 30 is now obtained with this treatment, in contrast to the 50 to 60 of the earlier process. Small plants, however, found it unsafe to attempt a softness below 75 with lime and ash treatment, because of the danger of caustic water.

Aeration is usually resorted to for the removal of dissolved iron and gases, either spray or cascade type of apparatus being employed for this purpose. The soluble ferrous bicarbonate breaks down through the liberation of carbon dioxide and oxidation on exposure to air, and forms the insoluble brown ferric oxide which can be scrubbed or filtered from the water. For most purposes, this method is entirely satisfactory and will reduce a water containing 2.5 parts per million of iron to .2 parts or less. Gases as well as iron are removed during this operation, the elimination of which usually results in a less corrosive water.



Dye jigs, used for piece dyeing and sometimes for bleaching . . .

The finishing plant that depends on processing its goods with untreated raw water from a nearby stream is certainly at the mercy of the elements at times, and those plants with inadequate water treating equipment are not much better off. Turbid water, fluctuating in quality, daily and seasonally, is a constant threat of impending trouble. The kier boil is perhaps most thought of in connection with turbidity because of its pronounced effect at this point. This operation consists of circulating a hot alkaline liquor, usually under 10 to 25 pounds pressure, through a more or less tightly and, presumably, uniformly packed column of grey cloth for a period of time ranging from 10 to 24 hours. This liquor is circulated downward through the cloth which, in turn, acts as a filtering medium and absorbs the suspended particles, on the top of the load forming brown stains. Even though perfect, suspended matter may be deposited on the cloth if raw water is used in washing-down following the boil.

Hard water aggravates this by the formation of mixed lime, magnesium and iron soaps, as insoluble gummy masses. Even when a kier charge contains no soap, these compounds form through the action of the caustic liquor with the natural oils as well as with the tallow added in the warp size. When the turbidity and color runs high, these stains become more pronounced and correspondingly difficult to remove. Even when a filtered and softened water is used in the actual boil, some plants are forced to use raw water for wetting out the goods prior to and for washing down the kiers following boils. This is somewhat better but still results in trouble, for the wet cloth, itself, carries approximately one half to one third of the water for the boil into the kier which simply means that the total effect has been reduced in that ratio.

Each washing with raw turbid water increases the amount of foreign matter absorbed by the cloth with an increase in dullness. The liquid surface in washers using hard water usually contains a colored froth and when stopping becomes necessary, a brown stop mark may form across each strand of cloth at the water level.

Hardness is, moreover, a source of trouble in the bleach house at every step in which soap or soap residues are present through the formation of the insoluble calcium and magnesium compounds, which may be undetected on the cloth until after bleaching, whereupon, they show up as resists in dyeing and finishing, as well as giving a harsh feel to the goods. Uneven mercerization is also caused at times by these same resists from hard water.

The presence of turbidity and hardness has been a decided factor in preventing the general adoption of peroxide bleaching, following a caustic kier boil without removal of the goods from the kier. Experience has shown that this procedure is generally unsatisfactory without first washing and souring the cloth before the peroxide boil, except in those plants having satisfactory water.

Every wet operation with iron-bearing and turbid water, excepting sours, increases the amount of these materials absorbed with a resultant increase in yellow tint. This yellow bottom becomes correspondingly hard to cover by tinting in the final operation, usually resulting in a dirty, muddy white, or if dyed, trouble may be encountered in obtaining bright tints.

Differences in temperature, while not strictly considered as a quality of water in the ordinary sense,

have an important bearing in all wet operations conducted without heat. During the winter, rinsing may be incomplete because of the lowered solubility rate of chemicals with decrease in temperature and the increase of the water's viscosity with colder weather. The viscosity of water during the winter is approximately twice that of the summer value.

The dyeing operations are seriously affected by these defects in the water supply. Color, turbidity, and hardness form a scum with the dye on heating the dyebath, which if caught on the goods, forms dark colored stains, while the calcium and magnesium react with most dyes to precipitate them from solution as color lakes. This may result, moreover, in a loss of 25 per cent in color in extreme cases over the same formula dyed with softer water. Iron, on the other hand, usually dulls the color, and may prevent entirely the production of light bright tints if present in even relatively small amounts.

Color, turbidity and iron form a brown scum on boiling the starch mix for finishing, which nullifies the desired effect of the tint, giving a grey muddy white, or destroying the luster and brightness of dyed goods. Hardness is equally bad or even more so, for the calcium and magnesium form sticky, insoluble soaps with the tallow and oils used in the starch mix and when deposited on the cloth form grease-like spots.

Rope soaping machines used either single or in tandem as shown . .

The maple rolls of starch mangles and backfillers are usually kept moist by water sprays or wrapping in wet blankets, to prevent drying and checking. Raw water used for this purpose is a source of organisms and bacterial growth, which affects the useful life of the roll and also causes a scum formation on the surface. Filtered water will prevent this to a great extent for during passage through a filter, approximately 98 per cent of the bacteria and other organisms are removed. This applies equally well to the rolls used in the bleach house.

Water as a Finishing Material

While water is not commonly thought of as a finishing material it is well known that its judicious application has an extremely important bearing on the final result. In ordinary schreiner or chasing, it is claimed that the use of water alone gives a keener, sparkling luster of an entirely different character than can be obtained when finishing materials are present. The water mangle is commonly thought of as a bleach house machine for extracting water and acting as another wash for the bleached goods. It is well known, however, that cloth mangled with hot water acquires a closed up appearance with a full soft feel, whereas cold water causes a thinner, hungrier cloth.

Following starching, the cloth is dried either on cans or hot frames; usually a combination of both is employed which results in a very low moisture content. Cloth in this condition is unsuited for most calender operations because of this low regain, and is therefore moistened to supply the needed water. Since this is an extra operation attempts are occasionally made to adjust the drying to retain only the proper moisture content, a practice that fails to work satisfactorily in many cases. It is usual, therefore, to resort to sprinkling or conditioning in special apparatus to obtain uniform results. Sprinkling machines are used to dampen the cloth with a finely atomized spray, the amount of which can be controlled to supply more or less moisture as the type of finish demands. Following this, it is necessary to allow the batched cloth to stand two or more hours to equalize before calendering. Unequal spraying from any cause must be avoided since inequalities in the moisture content or the presence of water spots causes uneven finishing. Conditioning chambers are occasionally used to cool and return moisture to the cloth after drying on cans or frames, and are occasionally used in place of light sprinkling, and for this purpose can be used in ranges since they are capable of continuous operation, in that the cloth does not require equalization.

Calendering with light or heavy sprinkling gives entirely different results. An extreme example of the effect of water being the luster obtained with wet goods on a Charmeuse calender. A so-called permanent luster can be obtained with this machine when running at 50 to 60 tons pressure, 350 degrees F. and speeds of 30 yards per minute. The cloth in this case is run through a box of water and then directly to the first nip soaking wet. This produces a deep-seated high luster, capable of withstanding a few wettings and makes an excellent foundation for schreinering. Although it is possible to run wet cloth to the calender, care must be taken that the temperature of the cylinder and the speed is regulated to this condition, otherwise "steaming" occurs in the roll with the resultant destruction of the calendering.

Steam may be substituted for light sprinkling and is generally applied to the cloth from a steam-box as it passes to the nip.

One method of obtaining moire effects is the passage of two layers of well sprinkled or wet cloth through the friction calender. Mercerized cloth shows this effect to a greater degree than plain fabrics, while the hotter the cylinders the damper the cloth, the higher the pressure and the slower the speed, the more pronounced this effect will be with a given cloth. This type of water mark may also be obtained when running single strands and is not always desired. In calendering well dampened goods a slight lateral shifting of the fabric in the nip may produce this effect. If now the water marked cloth is run on itself a second time the pattern diminishes in size, and on repeated passages they disappear entirely with formation of a deep seated luster and when carried on for this purpose is called chasing. This type of calendering is usually run on a machine especially fitted to pass four

or more strands, producing thereby a thready and watery appearance. Either warm or cold calenders are used but the cloth run with a warm cylinder requires more moisture otherwise a hard and papery finish would result. The cold calender results in a lower luster, especially on the back.

Embossing and schreinering are further examples of calendering in which the amount of water present in conjunction with uniformity of temperature is of extreme importance. The first of these consists of pressing a pattern into the cloth, while the second presses in parallel lines in the order of 250 or more to the inch. With irregular moisture content irregular finishing results, and in the case of embossing, especially, tendering of the fabric may take place from cutting in the figure when insufficient moisture is present.

Twills and sateen are commonly schreinered. Dampening constitutes a very important part of the finish of these fabrics and in the case of warp sateens, heavier sprinkling is required, with the lower counts. An example routing of this type of finish would be:

Cloth:
Grey 43", 120x84 to 136x96 3.35 yds. per lb.
Finished 40"
Routing:
Dampen
Friction Calender
Short Frame to 40½"
Schreiner:
Cylinder 320 lines 15°
Temperature 260° F.
Speed 20-25 yds./minute
Button Break

Short framing or stretching is another example of the use of water in finishing. In this operation, however, steam is ordinarily employed although heavy goods may be sprinkled in addition. The cloth is passed through a short tenter frame on which it is just moistened by steam, and then after being pulled to width is dried on its frame by passing over heated steam coils. This process is ordinarily only employed for dry or finished cloth to obtain finished widths, or one which on calendering will give the desired width. Insufficient moisture will not permit the cloth to stretch properly and loss of tensile strength results with possible damage to the selvage.

Shrinkage is a further application of water in finishing. The demand for reduced shrinkage in shirtings for the past five years has developed several methods for both absolute and nearly complete shrinkage. Investigation has shown that this is based entirely on the action of water with the cloth, and that the use of hot or cold water is immaterial to the results provided complete wetting-out is assured. The difficulty in the past has been entirely in the mechanical handling in that the cloth must be dried without tension of any kind to get the maximum shrinkage. This angle has received considerable attention and today there are several recognized methods of mechanical treatment giving various degrees of controlled shrinkage.

This is at best a sketchy summary of water as used in finishing but should at least serve the purpose of demonstrating that water, considered as a fundamental finishing material, can probably be the most variable of all and in many cases the least suspected cause of difficulties in the work.

(The next article in this series will discuss softeners as one of the basic raw materials employed in finishing piece goods.—The Editor.

Langevin Establishes Business for Re-Location of Textile Machinery.

George F. Langevin, who has been engaged in the textile machinery field for 25 years and who is well known throughout the industry, has established, with headquarters at 150 Holyrood Avenue, Lowell, Mass., a business specializing in the re-location of used machinery for textile mills. Mr. Langevin, in outlining his new business, explains that his service includes the complete representation of a mill interested in used machinery that is for sale: To inspect specific machinery requested and give a full unbiased report as to age, condition, size, make, and other necessary data; to act as guide and furnish car for prospective buyer, and take him where machinery is available; and to act as agent or representative for mills in the market for machinery by quoting the machinery that is available and furnishing information as desired machinery comes on the market, and purchasing this machinery on commission.

For 18 years Mr. Langevin was with the Saco-Lowell Shops as designer, service engineer, and selling agent, and for four years was sales engineer on textile applications for S K F Industries, Inc. He has traveled among most of the mills in the North, South and Canada.

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Union Special Prepares for World's Fair Visitors.

It has been calculated that 50,000,000 people will visit the exposition of "A Century of Progress" in Chicago this summer. Due to the fact that the theme for most of the exhibits is the portrayal of scientific and technical advances, it is safe to predict that the Fair will draw heavily from the industrial world for its patronage.

Union Special Machine Company, Chicago, has arranged for a large lounge room in the company's general offices, located at the northwest corner of the loop—for the convenience of the users of industrial sewing machines who will attend the Fair. In addition to a place to sit down and rest a little apart from the rush of the Fair, the company announces, visitors at the Union Special offices will find free stenographic service. In the lounge is an extensive display of the various new types of Union Special sewing machines, arranged to show installations of practically all of the many industries which the company serves. Recent motion pictures are shown to give spectators an opportunity to study high speed sewing operations by slow motion.

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Textile Medals and Awards at Georgia Tech Textile School.

At the annual honor day exercises at the Georgia School of Technology, Atlanta, on April 28th, a number of awards were made to seniors in the textile department. Alva Dean Zellner, of Forsyth, Ga., received the National Association of Cotton Manufacturers medal, for excellence in scholarship; J. Alex Fife, of Atlanta, was awarded the Cotton Manufacturers Association of Georgia medal for general scholarship, particularly in the textile department. The latter medal was presented by E. H. Rogers, agent, Fulton Bag & Cotton Mills.

National Legislation is Discussed at Meeting of Georgia Mill Men

INTENSIVE discussion of federal legislation as applied to the textile industry—a fast-moving and ever-changing subject now-a-days—and a program of reports reflecting a year of constructive activity and accomplishment by the Association, combined with a delightful program of entertainment and relaxation and recreation in a setting ideal for the purpose, made the 33rd annual convention of the Cotton Manufacturers Association of Georgia, held at Sea Island Beach, Georgia, on May 18th and 19th, a thoroughly profitable and enjoyable occasion.

L. L. Jones, secretary and general manager, Canton (Ga.) Cotton Mills, was elected president of the organization, succeeding Norman E. Elsas, secretary, Fulton Bag & Cotton Mills, Atlanta. W. K. Moore, president, Crown Cotton Mills, Dalton, was made vice-president of the association, and John H. Cheatham, president of the Georgia-Kincaid Mills, Griffin, is the new association treasurer. T. M. Forbes, secretary, and C. T. Kilgore, traffic manager, were re-elected, as was Hatton Lovejoy, general counsel. Edgar S. Tichenor, president, Walton Cotton Mills, Monroe, and W. A. Enloe, president, LaFayette (Ga.) Cotton Mills, were added to the board of directors.

L. L. Jones

Coming at a time when there was so widespread an interest in national affairs, particularly proposed and rumored legislation that would affect directly the textile industry, the meeting was well attended by mill executives who came to find out the latest developments, to get the views of other mill men, and to express their own opinions. Never before has there been in abeyance so much federal action of a vital nature affecting the industry. The lobby or unofficial discussion at Sea Island centered on this topic, with much divergence of opinion and conviction as to details, and even as to plans and methods.

But there was manifest a practically unanimous feeling of co-operation with the government in whatever plan is eventually adopted; and a feeling of confidence that out of the mass of proposals and counter-proposals, the administration may be depended upon to select and administer the most workable.

Certainly it is not saying too much to observe that the interest displayed by the Georgia mill men at Sea Island is a demonstration of an awakened consciousness on the part of the industry to the need of closer study of and contact with government; and to the great importance of setting and keeping the textile house in order, through self regulation and control.

There was evident, too, in the informal discussions, a distinctly higher feeling and attitude as to business conditions in the industry; many present reporting having increased operating schedules and others announcing wage increases within the previous few weeks.

One of the important sessions of the convention, on Friday, May 19th, was of an executive nature and cannot of course be reported. All other parts of the program, however, were of intense interest and importance—the outstanding feature being an address at the Thursday morning session by James A. Emery, general counsel of the National Association of Manufacturers, on the subject, "The Manufacturers' Interest in National Legislation." Coming fresh from conferences in Washington on the subject of federal legislation as applied to industry, Mr. Emery's remarks, forcefully and ably presented, provided the mill men with a first hand picture of conditions in the national capitol at the time, and indicated future developments. Mr. Emery said in part:

N. E. Elsas

"The charge has been made that industry has failed to meet the existing situation. The answer is that, in co-operation with its workers in the face of the world situation, it has on the whole successfully maintained a larger force than has been required to produce the goods it could market. More than that, it has at no time been free, under appropriate Government authority protecting the public interest, to establish those forms of co-operation essential to the practical meeting of its problems. This it has now sought the opportunity to do. It answers an unworkabel plan of drastic Federal regulation with the display of its earnest desire to co-operate with the Administration under a workable plan to permit the self-organization and self-control of industry in terms of the very conditions of each trade group and condition. The plan now proposed by the Administration involves that. Its practical success will depend upon the opportunity for self-organization afforded, but, above all, upon the character and personnel of its administration and our own capacity, under favorable conditions, to demonstrate our qualifications for industrial self-government."

Mr. Emery discussed informally and at length on the industry control bill then pending in Congress, and answered questions submitted by members from the floor.

Norman E. Elsas, president of the Association, made a brief address, in which he declared that, "The future seems to me to hold an entirely new set of problems, that will have to be faced and solved along

with many old ones that will recur. This country, as well as the rest of the world, seems to be undergoing a metamorphosis of thinking. Proposals that would have seemed more fantastic than flying to our forefathers now become policies. I feel that we may find it more advantageous than ever before, to keep an open mind, and to think out the problems presented in the light of the new deal—rather than to base reasoning on previous concepts of business and law. I do not mean to infer that we should supinely submit to encroachment on our rights—but we may often change our minds as to what we consider our rights to be."

The report of the secretary, T. M. Forbes, and that of C. T. Kilgore, traffic manager, indicated that the association office during the past year has been engaged continuously in constructive activity and achievement in behalf of the interests of the mills in the state.

George S. Elliott, manager and superintendent of the Pacolet Mfg. Co., Mill No. 4, New Holland, reported on the activities of the Textile Operating Executives of Georgia, of which he is vice general chairman. Thomas H. Quigley, of the industrial education department, Georgia School of Technology, Atlanta, spoke briefly at the Friday morning session on the subject of night schools in mills; and Howard E. Coffin, developer of the Sea Island Beach resort, and chairman of the board of Southeastern Cottons, Inc., spoke briefly at the Friday morning meeting.

J. A. Emery

The golf tournament of the association was conducted on Thursday afternoon, in charge of G. I. Parmenter, of Goodyear Clearwater Mills, Atco, Ga. The prizes for low net score were awarded to M. M. Trotter, manager, Manchester plant, Callaway Mills, and C. L. Hamilton, secretary Crown Cotton Mills. Mr. Elsas received a prize for low gross score among the mill men, and William Terrell was awarded a prize for low gross among the visitors.

The banquet on Thursday evening was an enjoyable occasion, with a humorous talk by Rev. Pierce Harris, of Columbus, and vocal selections by Mrs. Julian T. Hightower.

Report on Cotton.

Simultaneously, the recently formed cotton committee of the Association met. E. C. Westbrook, of the extension division, State College of Agriculture, Athens, made an interesting report on a survey that had been made to determine the staple and character of cotton grown in Georgia and of that consumed in Georgia. His figures, based on a questionnaire answered by 78 mills with an annual consumption of 1,035,515 bales, showed that the Georgia farmers are producing too much cotton of 7/8-inch and shorter staple, and not enough of 15/16-inch and longer staple to meet the requirements of Georgia mills. (See Table I.) Mr. Westbrook stated that, "You may say that this is nothing new, but if you will study the table closely you will note that the amount of cotton consumed of staples longer than 1 1/16-inch is small. Georgia can produce successfully cotton of 1 1/16-inch and less, but production of cotton longer than 1 1/16-inch has not been successful.

TABLE I. Cotton Consumption by Georgia Mills by Staple Lengths as Shown from 1932 Mill Survey and Compared with 1932 Production in Georgia by Staple Lengths.

Staple Length Inches	Bales Consumed Annually	Percent of Total Consumption	1932 Crop Bales	Per Cent	Surplus or Deficiency Bales
Less than 7/8	12,800	1.2	43,700	5.1	+30,900
7/8	361,217	35.2	592,900	68.8	+231,683
15/16	257,053	25.0	162,500	18.8	—95,553
7/8 to 15/16 ..	58,648	5.7			
15/16 to 1 ...	8,600	0.8			—8,600
1 inch	83,560	8.2	53,900	6.3	—160,460
1-1/32	130,683	12.60			
1 1/16	86,800	8.5	6,700	0.8	—80,100
1 1/8	14,500	1.4	2,200	0.2	—12,300
1 3/16	1,700	0.2			
1 1/4	17,204	1.7			
Over 1 1/4 ..	3,750	0.4			
TOTAL	1,037,515	100.0			

"An analysis of the sources of cotton consumed by Georgia mills shows that about one-third of your requirements are obtained from the western part of the cotton belt and is classed as western cotton; 2,800 bales of this cotton was classed as 7/8-inch staple; 54,000 bales 15/16-inch; 36,600 bales 1-inch; 123,500 bales 1 1/32-inch; 79,500 bales 1 1/16-inch, and 32,000 bales had staple longer than 1 1/16-inch. Experience of some of the mills in recent years has led us to believe that with more careful supervision of production it would not only be possible, but would be profitable to the mills and to the farmers to provide for local production of most of the cotton required of 1 1/32-inch and shorter."

Mr. Westbrook declared that the mills have indicated decidedly that the quality of Georgia cotton has improved during the last five years, due mainly to the planting of better seed. He discussed the work under way for continuing this improvement by establishing one-variety communities.

Other reports were made to the cotton meeting by various standing committees. H. H. Greene, of West Point, Ga., retired as chairman of the cotton committee, and B. J. Kane, of the cotton department, Fulton Bag & Cotton Mills, was elected to succeed him.

Taken as a whole, the gathering at Sea Island was in every way a success. The meeting place is an ideal one, and the time of the meeting was particularly appropriate for the mill men to foregather and discuss topics of current timely interest. A splendid crowd attended, and the combined opportunity for interchanging ideas, and for relaxation and recreation, made the entire occasion a most successful one.

CURRENT TEXTILE TOPICS. . . .

Looking Ahead

WHICH is the greatest factor in economic life—the law of supply and demand, or the mental attitude of the people who work under its operation, or the flow of currency and credit? Is any one of these factors in the ascendancy alone or do they bear certain harmonic ratios to each other?

What are inflation, deflation, reflation, the influence of the gold standard, the debt settlement, trade barriers, international money standards, and dozens of other baffling economic theories? The mind grows dizzy in its efforts to interpret these and find out their value and intent.

Be that as it may, according to all current reports, our economic life is affected by all of these things and many more. However, in the melee and chaos, the new administration in Washington seems to be untangling them, and, if not, it is doing the next best thing—it is pacifying the public mind with the fact that many of these deadly agents in our economic life are always present, but are frequently inactive, and can be made so again.

The mental attitude of most of us is remarkably better and business is reflecting a much saner and more wholesome reaction. The mental state in the present crisis seems to have been the most ascendant factor.

We have as much of everything as we had a few months ago. We have the same old crowd to work and consume, but the hysteria has subsided and reason and industry are acting. We have more—we have a better spirit and a more confident attitude, and the path of progress seems to have been found, and we are on the way.

ONCE some had reason to think that Government was a stern school master whose quick and cold eye was to guard business to the "tune of the hickory stick". Its attitude was one of forbidding threat and punishment.

Today, under the "new deal", the attitude of Government is that of "partnership with business", and it assumes the role of senior partner, saying that it is taking this position only to save business from itself. While the finger of scorn is always pointed at a small majority as the deprecators and degenerators of ethical business, it is also well known that "in the best of families" little scandals occur occasionally, and because of their prominence these effects are far reaching.

Partners with Government

For this reason the Government sounds the challenge to all businesses that they must cleanse their temples and set them in order, and that, if they, acting within their own groups and by their own plans, cannot do this, then the Government will have to take charge and compel the "bad boys" to be good and live in peace and good will with their competitors.

The law of life is co-operation, and not selfish cut-throat competition. The anti-trust laws never anticipated such conduct and were not enacted to apply to it. It is as much a social sin for manufacturers to kill each other economically as it is to kill the consumer.

President Roosevelt says that such unfair business methods must be stopped, and it sounded very much as if he meant what he said. It must not be overlooked that he is the one man who has authority to execute his mandates.

THE Cotton-Textile Institute, and its president, George A. Sloan, has struggled manfully through several years past to bring the textile industry into a united organization, for the purpose of stabilizing wages and prices, regulating the hours of work, controlling production, and other reforms. Developments within the past few weeks, occurring almost over night, lend prestige and importance to the Institute's efforts, which apparently have received the effective support of President Roosevelt. The industry is familiar with the following recommendation which the executive committee of the Institute has forwarded to the president:

The Institute Plan of Regulating the Industry

> "Resolved, first, that the executive committee of the Cotton-Textile Institute heartily endorses President Roosevelt's plans looking to stabilization of employment, prevention of overproduction and self-regulation of industry.
>
> "Second, that the executive committee recommends to the Institute's board of directors that a recommendation be made to all cotton mills in the United States that during the emergency period the limit of hours for labor shall not be in excess of forty hours per week and productive machinery as hereinafter defined shall not be operated more than two shifts of forty hours each per week (productive machinery is defined as looms in cotton cloth mills and spinning spindles in cotton sales yarn mills).
>
> "Third, that it is further recommended that two-thirds of the industry may recommend a decrease or increase in the hours if, as and when it appears that the public needs are not being properly served.
>
> "Fourth, that the committee recommends to the board of directors that this plan, when it has the support of mill executives representing two-thirds of the productive machinery as heretofore defined, shall be submitted to the President of the United States with a view to determining what further steps may be necessary to insure the adoption of and adherence to this program by every cotton mill in the United States."

Subsequently, an overwhelming majority of the 70 directors of the Institute, representing over 10,000,000 spindles, overwhelmingly endorsed the plan, meaning that at the outset the plan had the support of one-third of the industry.

Since, individual endorsements have been received daily. It was suggested in connection with the resolution that a majority of the executives consulted felt that an interim of perhaps eight weeks should be allowed after assurance that the plan would become ef-

fective in order to permit readjustment of organizations and clearance of orders taken on present costs based on existing longer operating schedules.

Under such a program the Government does not come in as a controlling factor, but as a co-operative agency. Mr. Sloan's argument is that the work of the organized 90 per cent of the mills is made ineffective by the holding out of the 10 per cent; these, by persisting in operating long hours and in other ways, are able to negative the work of the mills under agreement, for they can put goods of cheap production in quantity. The President gives the rebellious 10 per cent warning that if they do not come in under the system as developed, the Government will take steps to bring them in.

The textile institute, as is known, was organized in October, 1926, and it is worth holding in mind that the idea of the organization and the purpose which it was expected to achieve, came from southern manufacturers, and it has accomplished much, in addition to enlisting the great majority of mills into the work. The chief aim was to meet the situation in the industry caused by the great increase in productive equipment that followed the World War, resulting in a growing adoption of excessive operating schedules and a declining demand in several important lines of cotton products.

Talk of the Month.

The General Situation in Textile Markets

THREE months of Franklin D. Roosevelt and the "New Deal"! The first quarter of a year under the new Administration has been teeming with legislative action, fraught with uncertainties for the future but suggestive of a new era. Two distinct phases have arisen since March 4. The opening of the new regime was a month of drastic application of financial restoratives to relieve a crisis. This upset the normal increase of spring business in March, but as hoped the next month found conditions so much better that the long-awaited turn of confidence began to make itself felt and upturns in buying ensued when usually the seasonal trend would be otherwise. As one example, there was the April consumption of cotton at 470,000 bales, versus 366,000 a year before.

Following the action to relieve the credit situation and crisis, there started the long program of farm relief, inflation, industrial regulation legislative moves which bid fair to mark an epochal period in our national life. At the start of the past month, that is around mid-May, there was a broad economic wave of two-fold nature: on the one hand, the passage of the farm-relief-inflation bill and with it assignment to the President of the greatest power ever granted except in war time; on the other, a widespread speculative boom in textiles and all other commodities, accompanied by an extraordinary response to the President's appeal for liberal treatment of the workers in matter of wages as soon as possible.

With the national program well along, now starts the World Economic Conference, but while industry is learning that its position is irrevocably associated with governmental and international affairs, manufacturers no doubt will be most occupied for some time in adjusting themselves to the new domestic conditions. For some it will be only a moderate adjustment, perhaps, but for others a radical change is in sight if regulation is to be enforced in the manner proposed by the Administration. Significant of the importance which the cotton industry holds in this proposed "scrapping" of methods which involve cut-throat competition and starvation wages through overproduction was the President's special allusion to this branch in his May address.

Also significant immediately after was the impressive list of cotton industrial leaders who responded to the appeal of the Cotton Textile Institute to acquaint the President with the enthusiastic approval of his control plan. The best part of the Government's attitude in this movement is that it allows still for the industry to act by itself, voluntarily. Government directly in business is undesirable, but Government may work *with* business to the advantage of the country at large. The cotton industry is overwhelmingly in favor of the principles back of what the Administration aims to do. And as Roosevelt said: "The unfair 10 per cent could produce goods so cheaply that the fair 90 per cent would be compelled to meet the unfair conditions. Here is where Government comes in. Government ought to have the right and will have the right, after surveying and planning for an industry, to prevent, with the assistance of the overwhelming majority of that industry, unfair practice and to enforce this agreement by the authority of government."

Government plans for economic control made spring business for the long future a risky proposition for mills, but the inflation force set working was such a stimulus to short-term business as to create the most favorable textile conditions all round that have been experienced for a long run of years. It has been coming out of late that things were not as they seemed in the last inflation period and even outside of textiles evidence has been cropping out to the effect that the great decline culminating in the depression really had its beginning early in May of 1920. This might not have any significant bearing on the outlook, except that the recent rise runs parallel to those of other deflationary periods after wars. Franklyn Hobbs, Chicago economist, points out that in previous cases prices have dropped for thirteen years or so after wars.

It cannot be asserted that the outlook is perfectly clear for normal business ahead. The tax outlook and the trend of general consumer purchasing power depend upon the combination of normal return and restoration by legislative assistance. The cotton industry and other industrial branches, meantime, have had a taste of something which brings back sweet memories: a sellers' market, rising prices and a step away from hand-to-mouth buying. Selling in April and early May, for deliveries through those months and June, was figured to have once more put volume of turnover above production. This was the signal for a widespread extension of operations in mills and when the President appealed for higher wages the textile

companies were numerous among the first employers to respond. All signs have been favorable, up to ultimate consumer buying. Wage increases, billions of dollars' appreciation in values of stock and bond holdings, and aid for the great agricultural population are opening wedges toward restored public capacity to purchase normally.

New England Mill Situation

TEXTILES have moved forward in a broad way in this section during the spring, especially in the national pick-up of April and May. In Massachusetts, orders began to expand materially in March, as indicated by reports to the Associated Industries of Massachusetts. With the average month of 1926 as a basis of 100, the orders for March were given as 84.6, in contrast with 66.6 a year before. The orders for April had not been reported at the time of this writing, but evidences are found in the returns from all over New England that mill activities have expanded as against the normal seasonal downturns after March and the outlook by mid-May was assuring for the best operations in early summer for a long time.

On the rising market and improvement of inventories, producers of cotton goods are said to have been operating under the most favorable conditions for many months from the standpoint of profits. The definite upturn in raw material has led to fairly free purchasing by the mills of this region, while buyers of fabrics have as elsewhere sought to cover requirements far in advance. In Fall River, which has suffered the extreme of textile depression, a happy omen perhaps is found in the recent announcement that the first dividend to be declared by a publicly owned textile corporation for nearly two years (except for liquidation payments) was that declared by the Charlton Mills. It was the first dividend for three years by that company.

Rhode Island reported industrial employment increased sharply before the middle of May, with the broadest advance in the textile trades. Many mills in Connecticut were reported adding workers by the hundreds at the same time. Speculators in securities are already giving attention to the changed conditions for textiles, especially the stronger outlook from the point of inventory enhancement in value where the mills bought at low levels. This is reflected in the notable advance in shares of some mill companies.

Of course this section is vitally concerned with plans for national industrial control. As said by the Secretary of Agriculture, Henry A. Wallace, in an address at Boston: "I find there is an unusual amount of interest in the agreements section among cotton spinners of New England and the South. Apparently destructive competition has been almost as remorseless in the cotton textile industry as in agriculture. Under this bill it is possible to discipline that recalcitrant minority which has prevented the entire cotton industry from doing some of the things it has long needed to do. By terms of the new bill, it will be one of the responsibilities of the Department of Agriculture to help affected industries observe a code of ethics which all believe to be sound, while at the same time the rights of the consumer are adequately protected. It is to be hoped that this can be done in the spirit of co-operation rather than in the spirit of compulsion."

Speaking of the program, Robert Jackson, counsel for several cotton manufacturers in New England, expressed the sentiment that Secretary Wallace, through his power under the Farm bill, might be the man destined to lead the country out of its economic coma. And former Senator William M. Butler, a prominent cotton manufacturer of this district, saw in the same measure the promise of giving New England "a place in the sun". Among its benefits he saw an opportunity to bring about a fair and broad equalization of manufacturing conditions; also a possible preventive of exploitation by labor in night work and long hours, as well as control of over-production. "It gives an opportunity," he said, "for an attempt to raise both agriculture and manufacture to economic recovery."

In the midst of the general movement toward recovery, the Naumkeag Steam Cotton Company of Salem ran into a strike of 2000 workers, because of a plan to increase looms operated per man from 20 to 24. This was part of a program worked out by the company and union leaders over many months. The strike was said not to have the sanction of local union leaders or national officers. The company had not previously had but one strike in its ninety years of existence.

COMMENT ON THE COTTON MARKET

New Orleans, May 15th, 1933.

ALL that transpired in the cotton market the past several weeks represents much of the "new deal" program and augurs well as to the future, particularly as to what may be further expected of a constructive nature to come of the world economic conference which convenes in London on June 12th, when problems of world-wide importance will be up for consideration and action.

Considering the constructive developments that have taken place in Washington since early March, there is cause for the more cheerfulness that now prevails throughout the country, especially in the South and West as result of the substantial enhancement in the value of cotton, grain and securities, which serves to increase the purchasing power of the farmer, and is reflected in more activity in the industrial sections, increase in employment and, in some instances, in higher wages. Middling cotton in New Orleans today, although it sold at 8.91 recently, is quoted at 8.62, or about $13.35 per bale higher than it was quoted on March 1st.

Sentiment apparently remains more bullish than otherwise. The position of grain appears to be strong because of the indicated very small U. S. winter wheat crop, attention to which was called one month ago, and because of the delay in seeding corn, due to unfavorable weather in the grain region. In the cotton region there was just such trouble also—unfavorable weather, except in the South Atlantics; too much rain from east Texas to the west line of Georgia, and insufficient moisture in west Texas.

The domestic consumption of lint cotton is holding up well, about 471,000 bales for April versus about 366,000 for April of last year. After this time last season domestic consumption remained on the down grade. For instance: May consumption dropped to 332,000 bales, June to 323,000, and July to only 279,000. Domestic consumption may not only hold up well for sometime yet, but may increase since advices from mill districts of late are to the effect that there is increased mill activity this month, although additional machinery being prepared for work, is said to meet

the demand and forestall contraction in output expected to result from short hour legislation pending. Now that the Secretary of Agriculture, Washington, by the power recently bestowed upon him, is preparing to care further for the interest of the farmer, and may put into effect soon his policies intended to boost farm commodity prices back to the five year average pre-war levels, the matter of present and prospective consumption is likely to become an important market factor from now on.

ESTIMATE OF WORLD'S CONSUMPTION OF COTTON.

Bales—	This season	Last season
American lint, consumed during March	1,164,000	1,171,000
American consumed, Aug. 1st to March 31st	9,152,000	8,390,000
All kinds, consumed during March	2,111,000	2,040,000
All kinds, consumed, Aug. 1st to March 31st	16,148,000	15,671,000

BRITISH BOARD OF TRADE REPORT FOR APRIL.

Year—	1933	1932	1931
Exports of yarn, lbs.	9,000,000	14,000,000	11,000,000
Exports of cloth, yards....	171,000,000	199,000,000	135,000,000

UNITED STATES CENSUS REPORT.

Bales—	This season	Last season
Consumption of lint, April	470,685	366,481
Consumption of linters, April	54,731	52,174
Consumption, including linters, April	525,416	418,655
Consumption of lint, nine months	4,218,001	3,932,370
Consumption, including linters, nine months	4,681,179	4,434,077
Mill stocks, April 30th	1,367,956	1,533,599
Stocks in public storage and warehouses, April 30th	8,151,547	8,212,738
Stocks in mills, public storage and warehouses, April 30th	9,519,503	9,746,337
Active spindles during April	23,416,680	23,362,862
Active spindles during March	23,429,122	24,817,340

WORLD'S VISIBLE SUPPLY OF COTTON MAY 12th.

Bales—	This year	Last year
Of American	8,534,000	8,488,000
Of other kinds	2,035,000	1,984,000
Of all kinds	10,569,000	10,472,000

With President Roosevelt at the helm, the ship of state seems in safe hands. Recently the President and Prime Minister MacDonald lined up for a seven point world economic recovery plan, which is as follows: "An increase in the general level of commodity prices; re-orientation of commercial policies; reduction of tariffs, quotas and exchange restrictions; world expansion of credit; capital expenditures by governments to stimulate business; re-establishment of an international monetary standard; improvement in the status of silver."

A program of this sort, which is likely to be carried out in whole or in part, would probably do much to cure the ills of the world by restoring universal peace and prosperity to all nations. It is said that the intent of the administration's farm relief, inflation bill, now a law, is to raise commodity prices, for cotton and wheat to pre-war 1909-1914 average price levels. Ninety cents per bushel is said to be the goal set for wheat. The average price of middling cotton in New Orleans for seasons 1909-10 to 1913-14, was 12.96.

The New Cotton Crop Outlook.

While there has been some increase in the sale of fertilizer tags in nine cotton states from December 1st to April 30th—1,735,000 tons against 1,390,000 for corresponding time last season, and while prospects, according to private returns, point to an increase in acreage of from about 6 to 10 per cent, the crop is reported to be about two to three weeks late, due to unfavorable climatic conditions delaying farm work over much of the belt, particularly in the central and western portions. As regards the probable acreage, much will likely depend upon the action to be taken by Secretary of Agriculture Wallace in exercising the power recently conferred upon him in the farm relief-inflation bill. Therefore, the matter of acreage, so far as this year is concerned, remains problematical.

TOTAL AVERAGE RAINFALL IN TEXAS, IN INCHES.

Year—	1933	1932	1931	1930	Normal
April	1.40	2.50	2.36	1.95	3.16
Nov. to April, inclusive....	11.61	18.01	15.28	11.81	13.36

Thus far this month there have been some good rains over much of Texas, but, perhaps too much in the eastern and hardly sufficient in the western and probably insufficient in the southern portion of the state.

WHAT THE SOUTHERN MILLS ARE DOING . .

THROUGHOUT the entire southern section, notably in the Piedmont section of the Carolinas, mills were resuming activity and engaging additional help during May. There were continuing and frequent reports of wage increases, averaging around 10 per cent, with more full-time operations in practically every sector.

The plant of Chipman-Burrowes Hosiery Mills, East Flat Rock, N. C., has been combined with the LaCrosse (Wis.) Hosiery Mills, and machinery from LaCrosse is being removed to East Flat Rock. The name of the company has been changed to Chipman-LaCrosse Hosiery Mills. Additional employees have been added. In addition to the line of men's half-hose, wool hosiery will also be manufactured.

Work on the new unit of the Beacon Mfg. Co., Swannanoa, N. C., is progressing. The addition will be four stories high, of concrete, brick and steel construction, and machinery will be removed from the company's New Bedford plant, the North Carolina property becoming the central unit of the organization.

Chesterfield Yarn Co. has been formed to operate the Caswell Cotton Mills, at Kinston, N. C., and overhauling of the equipment is under way.

The damage by tornado at the Blair Mills, Belton, S. C., will be repaired. C. M. Guest and Townsend Lumber Company, Anderson, S. C., have contract to rebuild 30 houses in the village and repair the damage to the mill buildings.

Owen Osborne, Inc., of Philadelphia, Pa., plan to install full-fashioned hosiery machinery, to be removed from Philadelphia, in a plant at Gainesville, Ga. A building will be erected by local interests.

Grifian Hosiery Mills, Burlington, N. C., have been incorporated by V. W. Lane, V. H. Lane and George S. Griffin, for the manufacture of hosiery. The capital is $50,000.

Pilot Full-Fashioned Mills, Inc., Valdese, N. C., recently placed in operation a second central station humidifying system in their new addition. This installation, as well as the original one, was designed and installed by the Carrier Engineering Corp., through their Charlotte office. This concern also has just installed a central station humidifying system at the Hudson Silk Hosiery Co., Charlotte, N. C., for conditioning 36,000 square feet of floor space.

Tennessee Valley Mfg. Co. has been formed to take over the Scottsboro Hosiery Mills, Scottsboro, N. C., under the management of C. E. Spivey.

Townsend Lumber Co., Anderson, S. C., has secured contracts through J. E. Sirrine & Co., engineers, Greenville, S. C., to paint and re-roof the Industrial Cotton Mills, Rock Hill, S. C.; to re-roof some 80 houses at the Orr Cotton Mills, Anderson, S. C.; and to build two storage warehouses, each 100 x 100 feet, one-story, at the Appleton Mfg. Co., Anderson.

Appleton Mfg. Co., Anderson, S. C., is to expend from $150,000 to $200,000 in expanding its power plant. The project will involve the installation of an additional boiler and steam turbine. This will be the second improvement of the power plant within a year. During the early spring two new boilers were installed to replace the old ones. J. E. Sirrine & Co., Greenville, S. C., are the engineers.

G. T. Whitlock is organizing the Victor Hosiery Mills Co., Hendersonville, N. C., for the manufacture of silk, mercerized cotton, and rayon hosiery. It is planned to acquire the Wetmur Building on Allen street in Hendersonville, and install about 125 seamless machines.

Kershaw plant of Lancaster Cotton Mills, at Kershaw, S. C., is to add 15,000 spindles. Robert & Co., Inc., Atlanta, Ga., are the engineers.

NEW TEXTILE EQUIPMENT AND PUBLICATIONS . . .

Pressed Steel Cork Rolls For Fletcher Twisters.

Fletcher Works, Glenwood Ave. and Second St., Philadelphia, Pa., have developed a new construction of pressed steel cork roll of patented construction for application to Fletcher and other types of twisters. The rolls are made

New Rolls for Fletcher Twister

of light, unbreakable, pressed steel, and are covered with high quality cork ground down to form a perfect cylinder. The set screw is placed in the middle of the roll, with a three-point bearing for assuring proper alignment and firm attachment. The rolls are light in weight, and durable, and the manufacturers point out that their application to the machine results in a saving in power, lengthens the life of bearings and eliminates sagging of the shaft.

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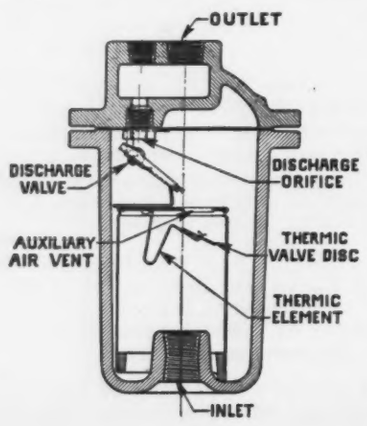
Trap with Thermostatically Controlled Bucket Vent.

Armstrong Machine Works, Three Rivers, Michigan, have developed an automatic air bypass to promote quick heating, integral with the Armstrong inverted bucket steam trap. Air escapes from an ordinary inverted bucket trap by passing through a small vent in the top of the inverted bucket and then rising to the top of the trap from



which it is discharged ahead of the condensate. The air vent, it is explained, must be kept small enough so that any steam passing through the vent will be condensed to make up for radiation loss from the trap.

For quickly removing air from slashers, jacketed kettles, unit heaters, pipe coil radiation, etc., the company describes a new special trap bucket, having a large auxiliary air vent. This vent is closed by a flat disc of stainless steel on the end of a strip of rustless thermostatic bi-metal which in turn is double-riveted to the bucket cap. As long as the trap is cold, it is explained, the disc is held away from the vent and air escapes so rapidly that the bucket cannot float and close the discharge valve. Air blows through until steam fills the radiation and reaches the trap, causing the thermic strip to seat the disc which prevents steam from escaping through the auxiliary vent. Thereafter, the trap functions in the normal manner, and any air that may be mixed with the steam will escape through the standard fixed vent.

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New Catalog on Centrifugal Pumps.

The Deming Company, Salem, Ohio, manufacturers of hand and power pumps for all uses, have issued Bulletin No. 4200, covering the Deming-Mueller single stage side suction centrifugal pumps (two ball bearing type). The bulletin shows illustrations of and describes motor driven and belt driven units, and gives information on construction and use.

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Single-Stage Water-Cooled Rotary Air Compressor.

A complete line of up-to-date rotary air compressors and vacuum pumps of the multi-cellular, sliding-vane type, in both water-cooled and air-cooled designs, has been developed by Allis-Chalmers Manufacturing Co., Milwaukee, Wis. The line covers a range of volumes from 50 to 2,000 c.f.m. at pressures up to 150 pounds, and vacuums up to 29.85 inches mercury. The air-cooled units are suitable for pressures up to 10 lb. G., and vacuums up to 18-inch Hg, and the water-cooled units for higher pressures and vacuums. No belts or pulleys are ordinarily required, as the units operate at standard motor speeds. All working parts are totally enclosed. The addition of these compressors rounds out the lines of centrifugal and reciprocating machines as already manufactured by the company.

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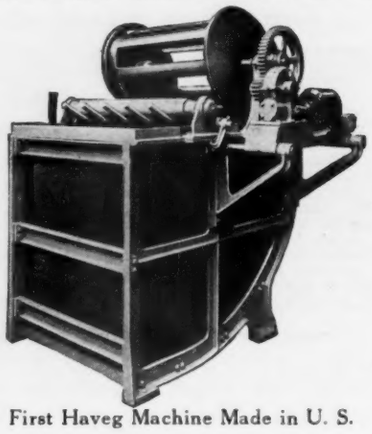
First Haveg Machine Made in this Country.

The accompanying illustration shows the first Haveg textile machine made in this country—a four-string piece dyeing machine for woolen and worsted fabrics, made of Haveg, the acid



First Haveg Machine Made in U. S.

and corrosion-resistant material. It was exhibited at the Knitting Arts Exhibition in Philadelphia by H. W. Butterworth & Sons Co., Philadelphia, Pa., licensees for Haveg in the textile industry. The tub of the machine is 36 inches wide and is equipped with winch and idler reel, motor-driven. The tub is cradled in a cast iron frame, which also provides the mounting for the drive. The tub is fitted inside with a perforated Haveg boiling wall and Haveg steam distribution pipes. Also ehibited were dippers, buckets and sections of piping made of Haveg.

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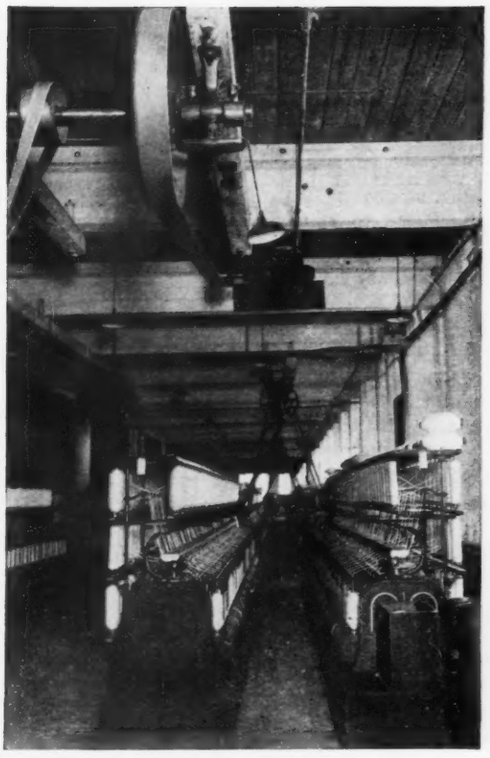
Hemphill Announces Duplex 12-Step Double Feed Reverse Plating Machine.

Hemphill Company, Pawtucket, R. I., have announced a duplex 12-step double feed reverse plating machine as an addition to their line of Banner hosiery machines. This new machine provides for reverse plating on both feeds, which is a development over the previous double feed 12-step machine which provided for reverse plating on one feed only.

The company claims one-third increased production on the new machine at no increase in labor cost. They point out that while no increased production is effected during the machine's reciprocal knitting of heels and toes, production is doubled on the straight-away knitting of legs and feet.

Pattern control for the second feed is effected by means of a dual 12-step



Can there be any SUBSTITUTE for this EXPERIENCE?

● The record of Goodyear Belts and Hose in the textile industry is not a matter of accident or fortunate circumstance.

It is the result of Goodyear's intimate experience with cotton mill requirements and the actual conditions under which cotton is spun and woven.

You have only to examine the construction of Goodyear's outstanding products for this industry to see to what good account this experience is put.

Goodyear Emerald Cord V-Belts, for example, are the highest development in V-belt construction today, just as they were the outstanding V-belts of 1929.

Goodyear COMPASS (Cord) Endless Belt is *the most nearly stretchless belt made* — ideal for individual motor power transmission on Pickers, Tappers, Twisters and Vertical Openers.

Goodyear THOR Belt (Seamless) is specially designed for extra-serviceability on Cards, Frames, Slubbers, Spoolers, Looms, Slashers and Breakers.

Goodyear Air Hose is first choice for clean-up duty.

All Goodyear Mechanical Rubber Goods for the textile industry are specified to your particular mill operations by the G. T. M. — Goodyear Technical Man. He will call promptly in response to a line from you to Goodyear, Akron, Ohio, or Los Angeles, California, or your nearest Goodyear Mechanical Rubber Goods Distributor.

Goodyear is represented in the South by authorized Goodyear Mechanical Rubber Goods Distributors conveniently located with relation to your mills and able to supply promptly all Goodyear Mechanical Rubber Goods for the textile industry

THE GREATEST NAME IN RUBBER

GOODYEAR

TEXTILE BELTING

pattern drum erected on the machine immediately in front of the cylinder with plungers leading to a second knitting point in the sinker head. The same type 48-move pattern discs are used to control both first and second feeds. As patterns can be changed with no change in yarn tensions or adjustments to knitting points, the new Duplex 12-step double feed machine, the company states, can be handled in exactly the same manner as the regular Banner 12-step machine.

In regard to patterns, the company states that through dual selection for pattern and color, three-color effects can be knit in a much wider range of patterns than is possible even with the regular Banner 12-step machine. This new machine offers definite competition in patterning to hosiery patterns lately imported from Europe, the company states. Deliveries on the new machine in 3½-inch cylinder size were to start June 1 with deliveries of 2½-inch to 4-inch cylinders as required.

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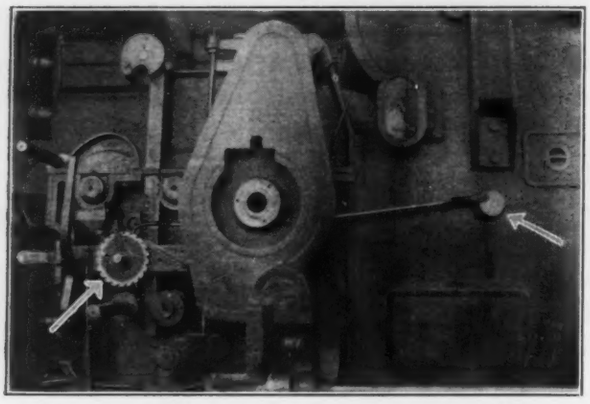
Device for Measuring Laps.

The accompanying illustration shows a lap measuring device developed by W. H. Trogdon, of Worthville, N. C., and marketed by Precision Gear & Machine Co., Charlotte, N. C. The cut shows a portion of a lapper equipped



Left, Trogdon device for measuring laps . . .

with this new device which, it is explained, is a simple ratchet wheel, which is ratchet-driven from the screen shaft. The device is so constructed as to knock the lever arm out from under the lever, thus cutting each lap off to the correct length.

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Altemus Firm Affiliates with Fidelity Machine Company.

The firm of Jacob K. Altemus, 2624 American St., Philadelphia, Pa., has been affiliated with the Fidelity Machine Co., of Philadelphia, Pa. All parts inventory, patterns, drawings, blue prints and details relating to the Altemus line, including Altemus winders, have been moved to the plant of Fidelity Machine Co., 3908 Frankford Ave., Philadelphia, and service will be continued to the textile industry by Fidelity. Webster Reeser, associated for 12 years with the Altemus organization as designer and service man, continues his Altemus service with Fidelity, the announcement states.

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Type S Reliance Gearmotors.

Reliance Electric & Engineering Co., 1042 Ivanhoe Road, Cleveland, Ohio, have announced a new line of gearmotors in sizes rated ¾-hp. and up. These combine motor and speed reducer into one unit. The manufacturers point out the following features: A cartridge-type gear unit carrying all gears and bearings except the high-speed pinion and bearing; a simple train of helical gears; a solid support provided by substantial feet cast integral with the gear housing, etc. The ratio can be readily changed by the user by changing the high-speed pinion and gear. Rotating the cartridge gear unti provides four to eight positions of the output shaft. Oil height is checked by an ordinary bayonet-type oil gauge.

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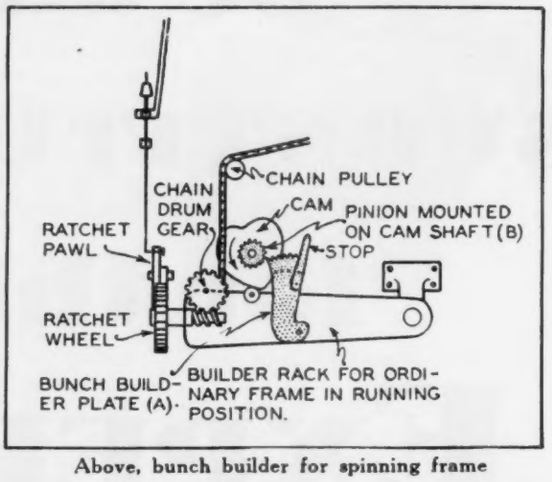
New Sulfogene Fast Black.

The dyestuffs division of E. I. du Pont de Nemours & Co., Wilmington, Del., has announced Sulfogene Fast Black CL, similar to the company's Sulfogene Carbons but possessing superior fastness properties. The company says: "It is superior in resistance to chlorine, acid cross-dyeing, steaming, and ironing, and is much less likely to tender goods on prolonged boiling. Sulfogene Fast Black CL dissolves readily, penetrates, levels and exhausts well, and, being unaffected by iron or monel metal, may be used in all types of machines employed for sulphur colors.

Bunch Builder for Spinning Frames.

W. H. Trogdon, Worthville, N. C., has developed a bunch builder for spinning frames which is shown in the accompanying illustration. It consists of only two pieces attached with machine screw, and, Mr. Trogdon states, works on any type of spinning frame. The plate and pinion comprising the bunch builder are shown at *A* and *B* respectively in the illustration. When the frame is pulled down for doffing, the builder rack drops somewhat lower than its location during the running position; at this time the plate swings under the pinion by its own weight, which holds the ring rail at a point where the yarn is wound on the bottom of the bobbins so long as the plate remains under the pinion. Meanwhile, the pinion drives the plate out, when the rail moves to its normal position, and the bobbin is built in the normal way. This action is repeated automatically at each doff.



Above, bunch builder for spinning frame

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Tubize Chatillon Purchases Argus Knitting Mills.

The Tubize Chatillon Corporation, manufacturers of synthetic yarns, have purchased the Argus Knitting Mills, manufacturers of circular knit rayon fabrics, with plants at Brooklyn, N. Y., and Lebanon, Pa., according to an announcement by John E. Bassill, president of Tubize Chatillon Corporation. When confirming the purchase he said, "We have purchased the machinery, equipment and good will of the Argus Knitting Mills. A new building to house the knitting mill is in course of construction at our plant at Hopewell, Va., adjoining the nitro-cellulose yarn unit. It is our expectation to have the plant completely installed and operating at an annual basis of 6,000,000 pounds of cloth by June 15."

This Mill Owner raised a good question:

"WHAT ABOUT END BREAKAGE?"

HE was convinced that Armstrong's Seamless Cork Cots would save him as much as 60% on his roll covering bill . . . and that saving was mighty tempting. But end breakage was of paramount importance in his mill which spins sewing yarn. On this point he wanted reasonable proof.

Facts taken from mill records answered the question. In most all cases actual records kept over a period of months show *less end breakage* with Armstrong's Seamless Cork Cots. Many mills also report stronger, more even yarn and increased production.

These Cork Cots with a uniform drafting surface are free from troublesome seams. They run longer between buffings thus reducing roll changes, piecings, and slubs in the yarn. Clearer waste is reduced and eyebrows practically eliminated. They are less affected by high humidity and hard ends. Top roll lap-ups are cut greatly.

As a result of all these factors there is less end breakage, more even drafting, stronger, more uniform yarn, and, in many cases, increased production with Armstrong's Seamless Cork Cots. These operating advantages, plus the great saving in cost, explain why more than 20% of the active spindles in the industry are cork-equipped today—and more are being equipped as fast as replacements permit.

There's one sure way to find out what Seamless Cork Cots will do in your mill. Try them on a test frame and compare them with other rolls—of any material. May we help you plan a conclusive test? Armstrong Cork & Insulation Company, Textile Division, 923 Arch Street, Lancaster, Pennsylvania.

Armstrong's SEAMLESS CORK COTS

For Spinning and Card Room Rolls

TIMELY NEWS ITEMS WITH A TEXTILE SLANT . . . .

"Doc Steelstrap" Finds Improved Conditions.

Healthier business conditions throughout the country are reported by "Doc Steelstrap", the new medico discovered by L. W. Kimball, advertising manager, Acme Steel Co., 2840 Archer Ave., Chicago. The announcement of his discovery states that "Doc Steelstrap, whose photograph is the central figure in the new Acme Steel advertising campaign, is a packing and shipping specialist. He guarantees a cure in all cases of damage-itis, pilfer-itis, high cost-itis, and practically any other shipping ailment. With 53 years of experience in keeping shipping containers strong and healthy, old Doc Steelstrap has had marked success in treating and preventing broken sides, fractured heads and bottoms, and general disabilities due to indulgence in irregular packing habits."

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Purse Returns to Chattanooga

W. B. (Bill) Purse has returned to the executive offices of Standard-Coosa-Thatcher Co., Chattanooga, Tenn., after a year in the central states calling on the industrial thread market. He will be connected with the sales department which directs the thread and yarn sales.

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McInnes Goes to N. Y.

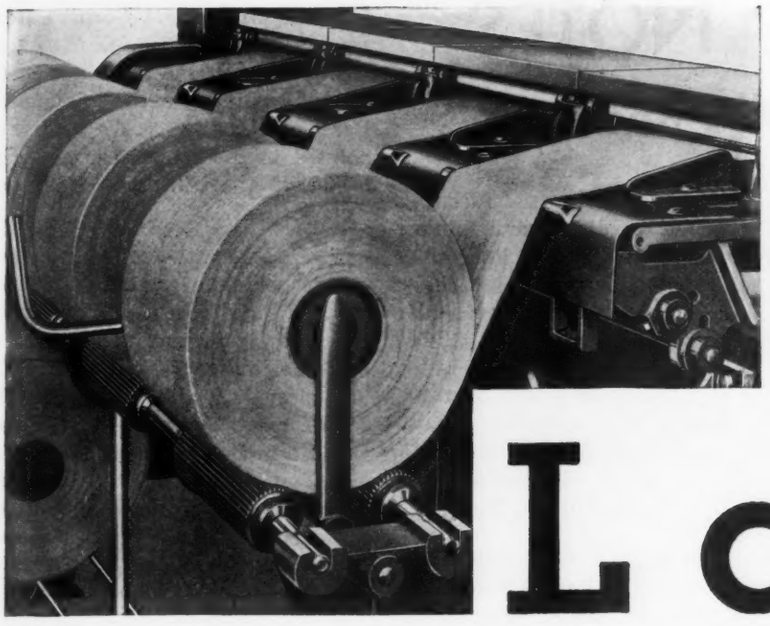
H. S. (Stan) McInnes of Standard-Trump Bros. and Scott & Williams, Inc., has been transferred to the main offices at New York City. He will continue to make frequent calls throughout the South.

8th CHATTANOOGA YARN ASS'N GOLF TOURNAMENT

Awarding the prizes at the Chattanooga golf tournament

THE Chattanooga Yarn Association were hosts to southern knitters and manufacturers selling to the knitting trade at the eighth annual spring golf tournament of the association, held at the Chattanooga Golf and Country Club, Chattanooga, Tenn., on May 25th and 26th. The attendance was the largest in several years. There were two afternoons of golf and plenty of other entertainment for those who did not play golf and those who did. The prizes were distributed at a banquet, held on Friday night. Dave O. Blevins, of the Kaumagraph Company's Chattanooga office, is president of the association, and Charles L. Hall is secretary. Other members are: Dudley Bryan, F. N. Belk, French Campbell, Ralph Ewing, Claude Gott, Bob Griffith, H. G. Gross, Stanley Hart, Don Hurlburt, Bill Jackson, Wilbur Lawson, Ed Kimball, R. D. McDonald, Stanley McInnes, and Tom Moore. The golf tournament winners, prizes, and donors at the eighth tournament were as follows:

1. Clyde Wilkins, Champion Knitting Mills, 6 silver goblets, given by Aberfoyle Mfg. Co.
2. R. B. Davenport, Jr., Davenport Hosiery Mills, 6 silver goblets, given by Duplan Silk Corp.
3. George R. West, Jr., Dixie Mercerizing Co., automobile radio, given by Oscar Heinemann Corp.
4. Dave Blevins, Kaumagraph Co., portable radio, given by John Lovell, Patten Hotel.
5. Charlie Hall, American Bemberg Corp., porch glider, given by Fidelity Machine Co.
6. Russ Shelton, Claussner Hosiery Mills, sterling cocktails, given by Standard-Coosa-Thatcher Co.
7. Lee Reyburn, Morristown Knitting Mills, golf bag, given by Central Franklin Process Co.
8. John Kain, Signal Knitting Mills, matched wood clubs, given by Avondale Mills.
9. George Szabo, Holston Mfg. Co., traveling bag, given by Dixie Mercerizing Co.
10. R. J. Fisher, Athens Hosiery Mills, traveling bag, given by American Glanzstoff Corp.
11. M. W. Raulston, Dixie Hosiery Mills, fitted traveling case, given by Adamson Brothers.
12. William Murphey, Signal Knitting Mills, after-dinner coffee set, given by Paramount Textile Machinery Co.
13. O. H. Ingram, Ingram Mfg. Co., traveling bag, given by Smith-Drum Co.
14. William McAllester, McAllester Hosiery Mills, matched woods, given by Gate City Cotton Mills.
15. Stanley McInnes, Standard-Trump Bros. Machine Co., silver pitcher, given by Standard-Trump Bros. Machine Co.
16. Neil W. Thomas, Dixie Spinning Co., wrist watch, given by Atlas Paper Box Co.
17. Fred Johnson, Graysville Hosiery Mills, zipper bag, given by COTTON.
18. Floyd Dooley, Johnson City Mills, sterling sherberts, given by Torrington Co.
19. J. A. Huff, Jr., Rockwood Mills, sterling cream and sugar, given by Kaumagraph Co.
20. Wilbur Lawson, Standard-Coosa-Thatcher Co., silver dishes, given by Laconia Needle Co.
21. Parker Smith, Smith-Drum Company, cocktail shaker, given by Ruben Hudson, of Edwards & Lebron.
22. E. W. Martin, of Tubize-Chatillon Corp., silver platter, given by Tubize-Chatillon Corp.
23. Fred Lemmond, Dixie Mercerizing Co., silver brushes, given by Quaker City Chemical Co.
24. Sam Diggle, Dixie Mercerizing Co., electric clock, given by Royersford Needle Works, Inc.
25. E. E. Pickard, Davenport Silk Mills, silver compotes, given by Payson Yarn Co.
26. Guy Henley, Nick-a-Jack Hosiery Mills, silver dishes, given by Franklin Moore, of the Read House.
27. Henry T. Bryan, Bryan Hosiery Mills, dinner chimes, given by Underwear and Hosiery Review.



Modern Drawing using

Laps

results in stronger yarn!

By drawing from laps, rather than from individual ends of card sliver, this new process produces sliver that results in stronger, more uniform yarn with far less end breakage during roving and spinning.

Breakage and piecing are eliminated

In this process, there is no breakage. This eliminates the many variations due to stopping and piecing in ordinary drawing, and the improvement in sliver is remarkable. Using the same card sliver, a comparative test (by a mill) was made. Sixty 1-yard samples of sliver produced by regular drawing showed a variation of 11.5% in weight, while sixty samples of Controlled-draft sliver varied only 6.5%, showing 43% greater uniformity.

Greater strength, less end breakage

The two test lots of roving were made into 30s yarn by identical processes. The breaking strength of the yarn from the Controlled-draft drawing was 5.9% greater, while the ends down were 64.75% less. Investigate MODERN drawing!

SACO-LOWELL Controlled-draft Drawing

SACO-LOWELL SHOPS

147 MILK STREET, BOSTON, MASSACHUSETTS

CHARLOTTE, N. C. SPARTANBURG, S. C.

ATLANTA, GA.

PERSONAL NOTES
about Men You Know

L. F. MOORE, for a number of years western representative for ron, Ohio, is now in charge of the entire district in the South, following the recent death of L. L. HASKINS, formerly eastern representative. Mr. Moore's headquarters are now in Greenville, S. C. He has had a wide experience in the sale and practical application of belting in textile and other industries.

L. F. Moore

JACK M. ALEXANDER, formerly with the Gastonia Mill Supply Co., has become connected with the Odell Mill Supply Company, of Greensboro, N. C., representing this company in the Gastonia territory.

P. B. LATIMER III has been made superintendent of the Dalla-Noval Yarn Mill, Dallas, Ga. He was formerly assistant superintendent. Mr. Latimer is a graduate of the textile department, Georgia School of Technology, Atlanta, Ga., class of 1930. J. A. HENRY, a graduate in textiles at Tech, class of 1932, is now overseer of night operations at the Dalla-Noval plant.

ROBERT PALMER TAYLOR has accepted a position as second hand in carding at the Coventry Mill, Anthony, R. I. He was formerly with Pierce Bros., Ltd., New Bedford, for about three years, and was also with the Wamsutta Mills, New Bedford, in the carding department. Mr. Taylor has spent about seven years at the New Bedford Textile School in various night classes.

L. C. COGGINS, formerly with the Martinsville (Va.) Cotton Mills, has been made superintendent of the Edna Mills Corp., Reidsville, N. C., succeeding T. L. LEWIS.

NELSON N. HARTE, formerly overseer of carding and spinning at the Edna Mills Corp., Reidsville, N. C., is now overseer of carding and spinning at the Martinsville (Va.) Cotton Mills.

G. C. FINLAYSON is now overseer of carding and spinning at the Edna Mills Corp., Reidsville, N. C. He was formerly with the Dacotah Cotton Mills, Lexington, N. C.

ROBERT W. BOYS, formerly superintendent of the Farr Alpaca Company, Holyoke, Mass., has become general manager of the Green River Mfg. Co., Tuxedo, N. C., and Pisgah Mills, Brevard, N. C., succeeding W. M. SHERARD.

T. A. SIZEMORE, one of the veteran mill men of the South, and for the past 34 years superintendent of the American Spinning Co., Greenville, S. C., has retired from active service, and W. J. STILL, formerly superintendent of the plant of the Aragon-Baldwin Mills, Chester, S. C., has been made superintendent at American Spinning Company succeeding him.

PIERCE S. SMITH, a graduate of the textile department at the Georgia School of Technology, Atlanta, class of 1931, recently entered the employ of the American Finishing Co., Memphis, Tenn.

JOHN P. POWELL, a graduate in textiles at Georgia Tech, class of 1931, is connected with the Swift Manufacturing Company, Columbus, Ga.

ROBERT J. MCCAMY is in the dyeing department of the Pepperell Manufacturing Co., Lindale, Ga. He is a graduate in textiles at Georgia Tech, class of 1932.

J. M. SUMMEROUR, a graduate in textiles, class of 1931, Georgia School of Technology, has returned to the employ of the Bibb Manufacturing Co., Macon, Ga., as inspector in the finishing department.

WILLIAM TOLL, secretary-treasurer, Sipp-Eastwood Corp., Paterson, N. C., and H. W. HILGERT, vice-president and general manager, Dundee Textile Company, Passaic, N. J., recently were appointed to the committee on legislation of the Silk Association of America, Inc.

T. L. MAYNARD has been added to the selling organization of the U. S. Ring Traveler Company in the southern states. He was overseer of spinning at Belmont, N. C., and previously had attended the textile department of North Carolina State College. He will assist WILLIAM P. VAUGHAN, southern representative of the company for the past 20 years. OLIVER B. LAND represents the company in Georgia, Alabama and Tennessee.

C. E. BALDWIN has resigned as manager of the plant of the Tubize-Chatillon Corp., at Rome, Ga. DR. E. H. HEMINGWAY, chief chemist, DR. WALTER PELZER, of the research department, and CARL EPPS, of the research and sales staff, also resigned.

WINDER GARY has resigned as superintendent of the cotton mill of Ware Shoals (S. C.) Mfg. Co., to become general superintendent of Hannah Pickett Mills, Rockingham, N. C., succeeding J. W. JENKINS.

Obituary.

E. A. SMITH, president of the Phenix Mills, Kings Mountain, N. C., died in a Charlotte Hospital on Sunday, April 30th, after an illness of two weeks. Mr. Smith was 70 years of age. He was engaged in sales work until 1892, when he built the Chadwick-Hoskins plant at Charlotte. In 1910 he built a large plant in Rhodhiss, N. C., and went to Kings Mountain as president of the Phenix Mills in 1915. He is survived by four sons and five daughters.

LLOYD L. HASKINS, sales representative of the Akron Belting Co., Akron, Ohio, passed away on May 10th, following a short illness. Mr. Haskins was a resident of Greenville, S. C., and had been in belting sales and engineering work for the past ten years. He is survived by Mrs. Haskins, two daughters and two sons.

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Send sample and prices for (*state operation and fabric*) _____

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Expect not only to cure the troubles, but to replace them with a finer . . . speedier . . . more profitable output. A test in your plant tells the story. Send coupon for sample and details.

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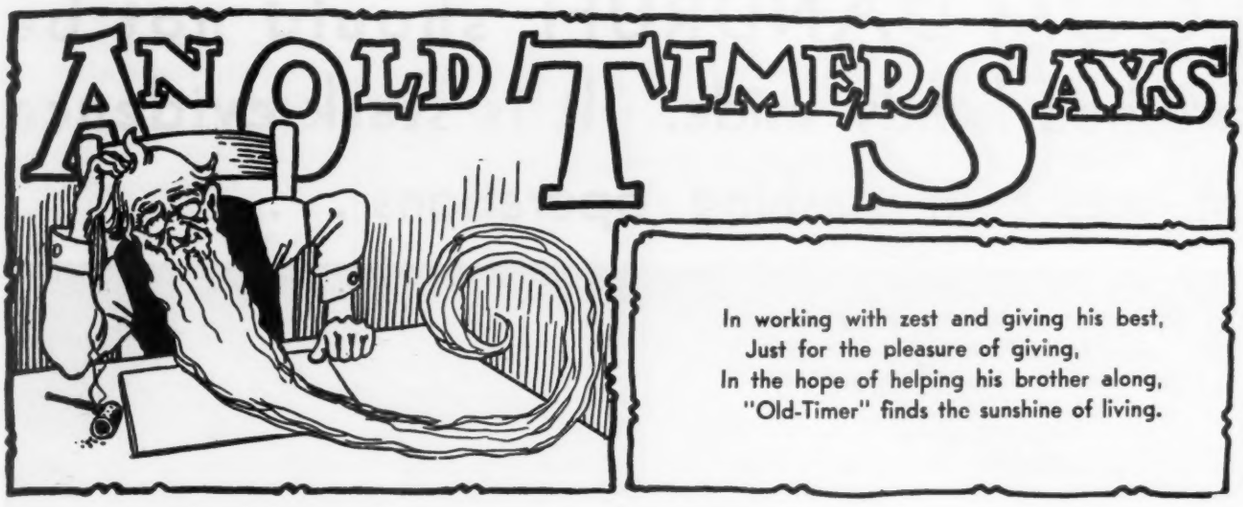

AN OLD TIMER SAYS
In working with zest and giving his best,
Just for the pleasure of giving,
In the hope of helping his brother along,
"Old-Timer" finds the sunshine of living.

The Thrill of Accomplishment

WHAT a thrill a man gets when he realizes that he has done a good job on some particular problem on which he has been working!

And the next biggest thrill is to see someone else, under his direction, do a good job.

Here is explained, in a few words, the work of an overseer or superintendent, who, after he has studied, gathered information and put forth his best efforts, sees the fruit of his labors; sees his production increase, his cost go down and his supply account decrease.

That is comparable to the man who puts seed into the ground, nurses and tends it and finally reaps his reward in the perfected fruit, be it cotton, grain or what not; that is what brings joy to a man's heart. But the efforts of an overseer or superintendent are on a higher plane than that of the man who plants seed in the ground.

To be able to induce another brain to carry out the thoughts of your own—well that is just simply the highest achievement possible for a human being. The overseer or superintendent who can get the co-operation of his *subordinates*—no, I do not like that word; it sounds too darn much like the overseer thinks that he is a superior being, compared with the section man, or that the superintendent thinks that he is just *It*, compared with the overseer. Yes, I know that some of them do, poor fools. Anyway, instead of using the word *subordinates*, I am going to say *co-workers*.

Now let's see, what in heck was I talking about? Oh yes: The overseer or superintendent who can get the co-operation of his co-workers in such a way that his firm will get the benefit of the brains of both of them—well, that is getting just about what we call perfect.

There are so many of us who think we know it all and who seem to be in constant fear that some other fellow will get a little credit for something, and we have taken up the most of our time trying to figure out ways in which we can make the boss think that we are the whole cheese—

Say, brother, did you ever give a kid a red stick of candy, a toy, or something which you could see pleased the kid a lot, and do you remember how good it made you feel, You probably got as much, or more, genuine pleasure out of that than the kid did. All right, now suppose you try giving the other fellow a little credit for the things he does. Don't be afraid to let the boss know that you have a good man. Talk about casting bread upon the waters! You will get a lot more pleasure out of such an act than you ever dreamed was possible. Of course there are some people who have such darn mean dispositions that nothing will give them any genuine pleasure. They get no kick out of doing something to help the other fellow, but, thank goodness, such folks are in the minority, and they do not deserve to enjoy life anyway.

However, I am wandering away from the thought which I was attempting to bring out:

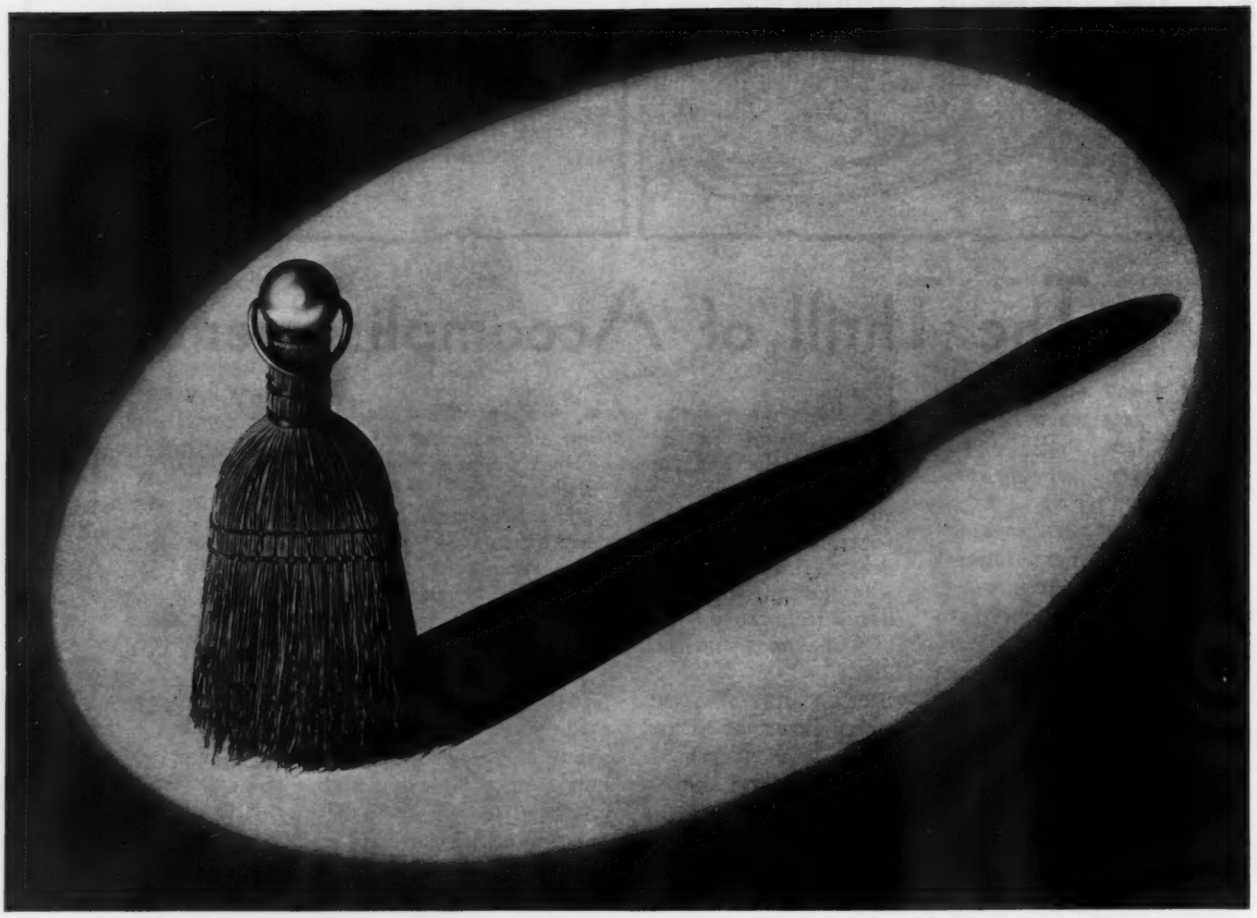
What a big thrill it is to see someone else do a good job under your direction!

The overseer or superintendent who, by fair dealing with his co-workers; by a constant application of constructive thinking; by a spirit of leadership, rather than "drivership," can obtain the loyal co-operation of the men and women with whom he is working—and will not have to look for a job. The job will be looking for him.

Recently I visited a young overseer in whom I am very much interested, and in looking through his room he chanced to show me a little patented device which he had on one of his machines. He explained how it worked and remarked that it only cost 45 cents. After

IN connection with this article, which interrupts the series on methods of working and management, we repeat our announcement that we have available, to any ambitious readers who will apply for it, a program of self-help and study prepared by Old-Timer, which will, to use his expression, "put more dollars in your pocket". Any interested reader, with the grit and courage to follow it, and the desire to improve himself, may apply to us for one of Old-Timer's study courses.—The Editor . . .

LOOM DANDRUFF should not be brushed lightly aside. It is stark evidence of waste in slashing operations . . . .



There is a good chance to save money by cutting production costs on slashers. Don't put off investigation any longer! Especially since this saving is made with an increase in quality.

There's no formula—no set way of cutting slasher costs. Every case is an individual one requiring an individual answer. Trained in the fundamentals of control, our engineers are in the fortunate position of being able to apply fundamentals to each case. They do not try to apply the same answer that has been used elsewhere to your problem unless both problems are identical.

Talk to a Foxboro Engineer. There is no obligation—and you will undoubtedly profit from the talk. Write today to The Textile Division, The Foxboro Company, Foxboro, Mass.

Textile Instruments

In addition to slasher control Foxboro has a complete line of Recording and Controlling Instruments and has applied them with success to practically every textile mill operation. Send your problem to us.

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he had finished the explanation I suggested to him that he make a small piece of cast-iron to see if it would take the place of the patented device. He made it according to a pencil sketch which I drew for him. It did the work just as well as the 45-cent device he had bought. The one he made cost not quite three cents, and as he had about 1500 machines on which to use it he was very much pleased with the new idea.

> There will always be a job
> for the man who knows How
> But the man who knows WHY
> will be his Boss!

That night I was trying to persuade him to take up a line of study and constructive reading in order, not only to improve his vocabulary (his conversation) but to form a background that would improve his mind and enable him to do more thinking. I gave him this rather crude illustration:

"When one of your operatives approach you in this manner: 'I is gwine to git out tomorrow', don't you at once form an opinion of that poor fellow? You realize that he has had no opportunity of an education. It matters not how faithful a worker that man is, you would hesitate to teach him how to run a section with the idea of finally making a second hand out of him. Now here is something which you have probably never thought of. When you talk to the superintendent, the president or the treasurer what opinion do you suppose they form of you? Do you suppose they realize, from your conversation, that you are just about as high as you are capable of going?

"On the other hand, when you are thrown with your superintendent, president or treasurer on a trip, or even in general conversation—if you use good language; if you can discuss problems of the other departments of the mill; if you have a general knowledge of what is going on in the business world; if you have studied enough commercial law (Mr. Reader, have you studied the Points of Law a Business Man Should Know, a series of articles published in COTTON) to enable you to talk intelligently; if you have a general knowledge of steam engines, steam turbines, condensers, electric motors, etc., know how to figure the kilowatts the lights in your room consume, know the difference between direct and alternating current; know what the full grades of cotton are; can say which is the highest grade, Strict Good Middling or Good Middling—

"Oh, why go on, when you are probably saying to yourself: 'Does Old Timer expect a young overseer to know all these things?' Yes, and a thousand more things about your work that you do not know (it will cost you nothing to know them, that is, nothing except to stay at home only two nights a week and study until 9 o'clock). The information you need may be found in textile magazines and text books which will cost you practically nothing. The price of a few picture shows will enable you to subscribe to the magazines, and the price of a few more shows will help you to buy the books. The other thing will cost you nothing, that is, the determination to study; to make a man of yourself; to rise above the crowd; to make of yourself such a good overseer, to make you shine so much brighter than the other overseers around you that when the superintendent's place is open there will be nothing to do but give it to you.

"The president or treasurer will not only know that you are the man for the job, but your brother overseers will know it; even your section men will know it and the overseers and superintendents at the other mills will know it. That superintendent's job will just come to you without the asking.

"You know all this just as well as I do, but, confound it, you won't do anything about it. You know the outstanding overseer in your community—well, why don't you be it?"

After I had just about talked myself hoarse to this young overseer he remarked:

"Well, you know some people have got more brains than others and can learn all these things."

"Wrong again, young man. Most all normal people are born with about the same amount of brains, but some have got the backbone to *use* them more than others. I can take you in charge and begin to put you through a regular set of exercises and in a short while you can lift 50 pounds more than you can tonight. You can run faster than you can tonight; you can hold your breath longer; you can jump farther, and by training your muscles I can cause you to do anything better than you can tonight. The muscles of the human body are a wonderful mechanism; they will respond quickly to systematic training. You know that don't you?"

"Yes, of course, anybody knows that."

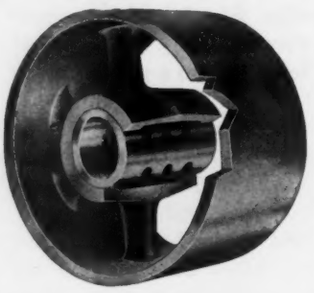
"O. K., Mr. Young Overseer. OLD-TIMER is here to tell you that your brain is the most wonderful part of your body. It is the most wonderful thing in the world. It is far more flexible; it is far more adaptable; it will grow faster than any muscle you have in your body.

"If you will feed it the knowledge it will not only absorb all you can put into it, but it will begin to create new knowledge for you. Although you are an overseer of weaving, give it the information you can get from textile magazines and text books on spinning and you can talk to Mr. Anybody about spinning. The same reasoning applies to carding, to engines, to pumps, to boilers—gosh, I'll bet two cents you don't even know what a surface or barometric condenser is, nor what it does on an engine or turbine. What is a vacuum, anyway? Well, that brain of yours is a pretty good vacuum, and will remain so if you do not start feeding it some knowledge."

But what a thrill the overseer or superintendent who has studied, gathered information and put forth his best efforts will get when he begins to realize that he is doing a good job on some particular problem and that he is helping someone under his direction to do a good job!

A POSITIVE FILM OF OIL ON BEARING SURFACES AT ALL TIMES

Moccasin Bronze Self Oiling Bushings with Capillary Feeders have been the standard for over fifteen years with the leading textile mills and machinery manufacturers. They are known to give ball or roller bearing results at a much lower cost. They require oiling only twice yearly and there is no waste of oil, no drippage to damage stock, belts or floors.



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Our offices are "Service Stations" for the Textile and related industries.

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Possibly we can be of service to you . . . . . .

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The present low-price will effect a great saving for you, and the now famous Denman structure can be secured in practically every textile accessory. Write for prices and further information.

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This service has been devised by a man with 25 years experience as a designer, service engineer and selling agent for textile machinery. It is a service that will insure you better and more efficient machinery at a great saving in cost and time.

Ask for full information, or send your requirements today.

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HOW OTHER MEN MANAGE

Practical Discussions by Cotton's Readers On all Varieties of Mill Subjects

An Explanation of "Needle"-Point or Side-Grinding for Card Clothing

In connection with the discussion of the "needle-point" card grinder at the Textile Operating Executives of Georgia, as reported on page 22 of the April issue of COTTON, we present below a letter from S. Sefton, director, Dronsfield Brothers, Ltd., Oldham, England. The discussion in question was participated in by A. E. Massey, superintendent of the Exposition Cotton Mills, Atlanta, Guy L. Melchor, of Howard Bros. Mfg. Co., and others. It developed that there were no installations of the needle-point grinder in this country. Mr. Massey and Mr. Melchor described "needle-grinding" as being similar to old-time "plough-grinding". Mr. Sefton's comments in connection with this matter will be of interest. He said:

"EDITOR COTTON: We notice on page 22 of your April issue, detailing the report of the March meeting of the Textile Operating Executives of Georgia, the replies of Mr. Massey and my old acquaintance, Guy L. Melchor, Sr., to the question on 'needle'-point grinding.

"As the inventors, patentees and sole makers of the portable automatic "needle"-point grinder with its accessory slow-driving motion for cylinders and doffers, we are naturally interested in this report and are in agreement generally with the theories relating to side-grinding, the 'burr' point, etc., and also the statement that the effect of grinding with the 'needle'-point grinder is similar to the old-time 'plough-grinding' of wire.

"Our treatise entitled 'Card Grinding in Theory and Practice', of which there are a thousand or two copies in the possession of mill men in the United States, deals at length with the topic of 'plough-grinding' and side-grinding. Our new 'needle'-point grinder, which has only been on the market a little over twelve months, and which is already in use in practically every cotton spinning country in the world, except the United States, is calculated to re-grind the points of card-clothing in exactly the same manner as the clothing is originally ground at the card shop. Its function is to re-side-grind the clothing when the fine points are worn thick by usage and the routine surface grinding in the mill.

"The term 'needle-point' as applied to card-clothing is a mis-nomer, and is used to convey to the mind extreme sharpness. Likewise the same term is applied to the new grinder which is not calculated to grind a real needle-point, but rather to replace the fine side-ground point imparted to the wire originally by the card-maker.

"We agree that pure needle-points would be useless for the purpose of carding, and we enlarge on this subject in the treatise mentioned, where on page 14 appears the following extract:

" 'Side-grinding' and 'plough-grinding' are termed 'needle-pointing', but this term is a misnomer and calculated simply to convey the impression of extreme sharpness. Card-wire pointed like needles and rendered perfectly smooth would be absolutely useless for the purpose intended, i.e., to take hold of the fibers and hold them during the process of the combing action of the opposing teeth. The only resemblance to the needle is in its general form, i.e., tapering from bend to point.

"Fig. 1 (see sketch) depicts a side-ground tooth. It will be observed that the base or root is left in its original form, viz: round, permitting of a good grip in the foundation; from the bend upwards, the wire is ground away from the sides, gradually tapering to the point. The top of the wire is afterwards surface-ground from back to front and a little on the edges, leaving the point intensely sharp at its extremity."

Fig. 1.

Speaking of the "burr" point on the wire, which, as Mr. Massey pointed out, produces the carding effect of the wire, Mr. Sefton referred to their theory, as expounded on page 13 of the book mentioned, as follows:

"Reasons for Side-grinding. First, the space between the wire of the card clothing is increased by reason of the side portions of the wire being ground away, giving greater clearing facilities for the fibers and preventing undue choking of the wire by the retention of broken seeds, leaf, and other impurities.

"Second, it will be understood that the abrasion by emery upon the wire teeth is not conducive to a polished effect, nor is it desirable to produce such an effect. On examination of a side-ground wire point with a microscope it will be observed that the surface of the wire is covered with a series of minute corrugations with fine jagged points or spikes of metal standing clear of the main body of the wire and all

◆ ◆

WE invite our readers to make use of this department for the discussion of any and all problems arising in the mill or finishing plant. Questions, answers or letters need not conform to any particular style and will be properly edited before publishing. The editors do not hold themselves responsible for any statement of opinion or fact which may appear in this department unless so endorsed. This department is open to all.

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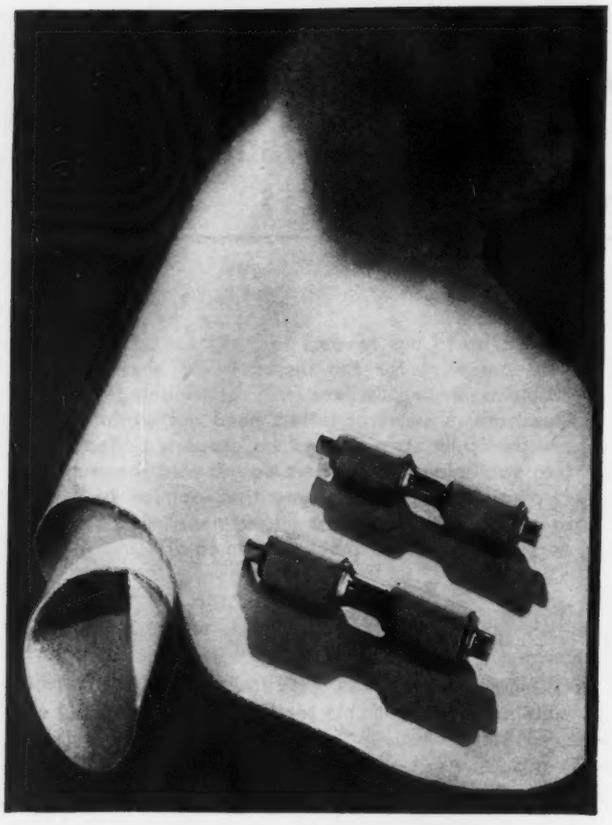

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SPINNA CALF gains steadily, year after year. It is the natural covering for rolls, producing excellent spinning results, long months of freedom from trouble. Eighteen months without touching rolls is not uncommon. Always on Monday mornings rolls are smooth and round, never flat nor distorted.

Fig. 5. A new "needle-pointed" wire . . . .

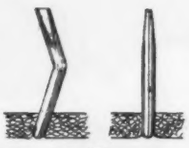


Fig. 6. The same as Fig. 5 after wear, showing thickened point .

around the edges of the 'point'. These fine spikes are the fiber carriers, and to them must be attributed the whole of the carding properties of the wire. When these points or spikes are worn or broken away, the card wires are no longer effective and must be re-ground to produce the 'spiked' effect."

Mr. Sefton kindly offers to supply copies of the book, "Card Grinding in Theory and Practice", to any superintendent or overseer of carding upon request, if the occupation of the man and the name of his firm is given.

Some Pointers on Loom Fixing.

EDITOR COTTON:

In an effort to start more discussion on weaving in your columns I should like to offer in this letter some ideas for loom fixers. I would be pleased indeed if practical men would criticize or add to any of these in the thought of helping us all out in our practice.

Before tying on a warp:

1. Tighten all bolts, put on lock washer if needed. 2. See that the shipper stud is tight. 3. See that the treadle stud is not worn out. 4. Inspect filling forks, rocker shafts, transfer, shuttle, shuttle feeler, and warp stop motion.

Now, let's see why it is necessary to inspect these parts and what benefit it will be to a job.

First, why tighten bolts and put on lock washers? This will keep down flags and also save on the supply bill. Second, why inspect shipper stud? If the shipper stud is loose and the loom is out of gear this will cause the crank shaft bearing bolts to break and also cause the crank shaft to break after so long a time. Third, inspect the treadle stud if it is worn out, as this will sometimes allow the treadle roller to get off of the cam and cause the loom to make overshots. It will also involve the danger of catching on fire. Fourth, now the rocker shaft is a very important part of a loom; in fact, it is the foundation of a loom. When the foundation of a building gives way the building falls. So will a section with worn out rocker shafts. This has an effect on the setting of most parts of a loom. Fifth, now, for filling forks. It is very easy to look at the filling fork when the rocker shaft is being inspected. The pins should be under the slide so that the slide cannot slip and get against the filling grate and cause a thin place.

The next points are the shuttle feeler and the transfer. These parts work together so that it is very easy to inspect both at the same time. Be sure that the shuttle feeler is protected, so that when the loom changes filling the shuttle will take three rings of the bobbin. If it catches less than three rings it will sometimes break the filling and change again. Now, about the transfer, the only way to see if the transfer is set correctly is to make the loom change filling and leave the lay on the front center. Then see that the transfer is in the center of the shuttle and with just a little play between the bobbin and transfer. Be sure that when the loom changes the shuttle does not pull away from the picker. If it does, put a piece of leather in behind the inlay strap. Always cut the inlay strap long enough so that other pieces can be put in behind it. Next, look the shuttle over and if it has any splinters or bruises on it, find out what is causing them and correct the fault. Be sure that the spring and eye are tight. If not, this will cause the loom to knock out filling. The next is the warp stop motion. If the loom will not stop when a thread breaks there is danger of a break-out.

Last, but very important, be sure that the loom is oiled in all the oil holes and not all over the loom. There is one other thing that I would mention and that is the hold-up strap. This should have two screws in it, one in the top and one in the bottom.

CONTRIBUTOR NO. 6235.

"Wash" Replies to Textile Graduate.

EDITOR COTTON:

I see on page 69 of the April issue of COTTON that "CONTRIBUTOR NO. 6207" answers me as a textile graduate. He refers to my letter on page 83 of the December issue, and essays to answer the four practical questions that I asked there.

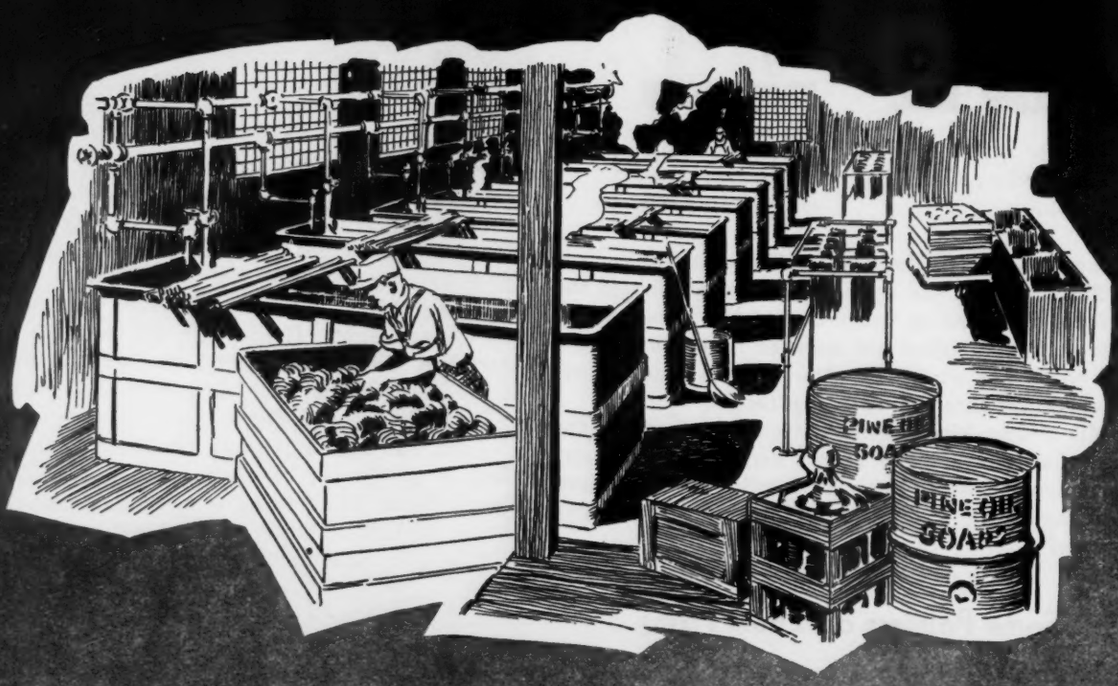
Evidently the gentleman is not a thinker, because I see no difference in his and my opinions of the textile school graduate. In my article of December, I stated, "Instead of figures, knowledge and experience are required." Then why does "CONTRIBUTOR NO. 6207" state, "Perhaps 'WASH' is judging all textile graduates by a few misfits?" So, let me make it plain, if any man lacks knowledge and experience, he is a misfit. Therefore, if you promote one of these misfits in preference to the practical man it is to my mind nothing less than a sacrilegious practice.

In fact, in my article I was not as critical as is "CONTRIBUTOR NO. 6207", for he wants to give the textile graduate one half the years of experience that the practical man has before he can hold his own. This is only what I tried to convey in my article. Then, I was right when I stated, "the textile student is not equal to the task and for this one reason could be considered an expense."

As regards the questions, please be reminded that I stated they are "problems which any practical man could answer with ease." So, if any of the readers solve them, I see no reason why they should be so happy as to turn somersaults.

Question No. 1: The breaker lap is larger in diameter at one end, although the lap rack and drafts are in perfect condition. What causes the diameter of the lap to be larger at one end?

"CONTRIBUTOR NO. 6207" answers that a large ended lap resulted once from the calender roll weight resting on the floor. I really think a textile graduate would see that much.



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1. **It removes the required amount of oils from rayon without affecting the strength of the fibers.**
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3. **It eliminates the necessity for corrosive materials which have a tendency to injure rayon.**
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Ask your textile chemical manufacturer about soluble Yarmor for boiling off rayon.

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CO-33

The real answer is, in case of oil spraying or running stick waste through the opener, in the first case some of the oil will find its way to the upper end of the conical beater shaft and a lot of stock will collect at this point, enough to affect the draft at the point where the stock enters the first beater box. In the second case, the threads from the stick waste will collect in the same manner and cause the same evil. This is experience.

Question No. 2: On a card we have a very high speed doffer and we are making a great amount of waste due to the webs at the front of the card breaking down continually. Is the cause in the comb setting, position, speed or what?

This man answers that it is a little difficult to say just what causes the web to break down without seeing or knowing the doffer speed, comb speed or cotton.

If he was a practical man, he would have answered as follows:

When a carder is obliged to run the doffers at a high speed and the webs keep breaking, the first thing he will look for is the condition of the comb box, also the quality of the oil. However, this can easily be determined from the comb box. Next, he knows from experience what to do if the trouble is due to a tight web or one that is sagging. He knows that by lowering the comb that the sweep of the comb is increased slightly over the surface of the doffer, and that the lower the comb strikes, the web's own weight will cause sags, while on the other hand in raising the comb the fibers have more opportunity to escape the short sweep of the comb and follow the doffer surface back to the cylinder or collect between the comb and the doffer surface.

I have found the trouble in most cases to be due to the speed of the comb and had 1/16-inch turned off of the groove pulley. When this is done a great amount of attention must be given to the comb posts, for the reason that the high speed and vibration will loosen them and break the comb. However, it is better to have this trouble than to have a lot of waste.

Question No. 3: On the drawing frame some days we have a tight web between the front drawing and calender rolls. Then the next day they run slack. What causes this?

He answers by saying that several things may cause drawing frame tensions to run differently. A different type of cotton, relative humidity, temperature, and finally, if there has been a change in the crown or draft gear, this causes a slight difference.

You can see from this answer that the gentleman tries to cover every point, but not being a practical man he forgot to mention the calender pinion or that in case of leather rolls the draft between the front and calender rolls should be less than one.

The real cause is when there is too much waste mixed with the raw stock.

If the draft between the front and calender rolls is O. K., the cure is in the setting of the rolls. Try it.

When the webs sag too much, make a slightly closer setting between the second and front rolls.

Question No. 4: On a fly frame we have a taper of 27 degrees that causes the roving to run over and

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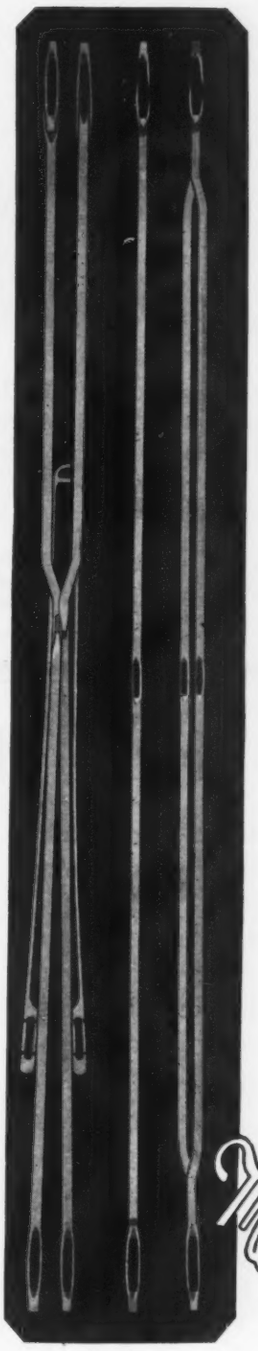

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(528)

under. We have no taper gears on hand to change the taper, but must remedy the trouble. How is this done?

The answer of "CONTRIBUTOR No. 6207" is O. K. but not practical, for you get all that he states in the textile school. In other words, any practical man or a textile graduate knows, or should know, that the larger lateral movement of the rack increases the taper. If he was an experienced practical man he would have followed with an explanation of the English builder. On the English builder or latch builder, in order to change the taper without changing the taper gear, you must make a mark on the center of a bobbin, next, run the carriage so the center of the eye of the presser pad will be on the mark on the bobbin, next level the poker bar, next, if you wish to increase the taper, shorten the poker bar. Next, raise the latch screws and run the carriage and set to the length of the layer desired.

"CONTRIBUTOR No. 6207" concludes by saying, "These are my answers and whether or not 'WASH' regards them as solutions, they are solutions for I have used them.

After reading this article, I think he will admit that he too lacks knowledge and experience. "CONTRIBUTOR No. 6207" is the kind that "SALESMAN JOE" classes as a scientific sharp. I would like for "CONTRIBUTOR No. 6207" to write to me again.

WASH (R. I.)

Weavers in the Back Alleys.

EDITOR COTTON:

I would like to see some more discussion on weaving than you have been carrying in the "HOW OTHER MEN MANAGE" department, and as a contribution would like to submit the following thoughts.

Is it profitable for weavers to spend most of their time watching the backs of their looms? My opinion is that it is, for they will catch all of the extra ends that come up in the warps and this will save stops caused from these extra ends matting up and breaking out other ends and making pick-outs. Also they will see the small balls of lint which get on the ends while running the section beam on the warper. We all understand that the warper tenders cannot see this lint, but when it is run through the size box and under the squeeze rollers it makes hard, flat lumps and when these places go through the drop wires they always break out another end and cause a loss in production and increase the weavers' work.

In our weave room we are constantly teaching our weavers to spend most of their time watching the backs of their looms, with the exception of starting up the looms and inspecting the cloth about every fifteen minutes, and we find that the weavers who do watch the backs of their looms get a better production and have less seconds. There is a great deal more which could be said on this subject one way or the other, and I hope that some other readers will give us their ideas through the "HOW OTHER MEN MANAGE" department.

CONTRIBUTOR No. 6234.

NEW ORLEANS

IN 1718, the Sieur de Bienville landed a small group of colonists some hundred miles above the mouth of the great river explored by his compatriot La Salle. In rapid succession the colonial settlement became a village, a town, a city—a frontier metropolis. Streets were crowded with a motley throng: ladies and gentlemen from the best families of France and Spain; leather-shirted frontiersmen from the forests of Kentucky and Tennessee; Indians; black slaves from the Gold Coast, via the Indies. On the Mississippi, pirogues, bark canoes and clumsy flatboats disputed the right of way with stately ships come up the river from the sea.

By the time the infant United States was formed, New Orleans was the key to all the vast region drained by its river and so essential to our expanding interests that Jefferson bought it in 1803, opening all the Louisiana country to American settlement. In those days in that section, cotton followed the flag; and the commerce of New Orleans already rich and varied, was broadened to include the fleecy commodity.

The city grew populous and rich. The Place d'Armes, the Cathedral of St. Louis, the aristocratic Pontalba Buildings—all the fine old landmarks of today's Vieux Carre—witnessed a social and economic development which has left its indelible stamp upon the modern city, the most interesting, says the seasoned traveler, in America.

The Civil War interrupted but could not stop New Orleans' progress. Sugar, cotton, the commerce of the Gulf and the long river, railroads, combined to increase the city's importance. Not the least of these was cotton. River steamboats loaded cotton at hundreds of plantation wharves and floated it down thousands of turgid miles for concentration in New Orleans and distribution to the world.

Today, no less than yesterday, New Orleans is a major cotton market for both spot cotton and futures contracts. And it is interesting to note that the cotton commerce of the river increases with each year—though now, to be sure, the ancient steamboat with its coonjine crew of roustabouts has yielded to modern barges towed in groups by powerful tugs.

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Some Fine Points on Setting Card Backs.

EDITOR COTTON:

Taking a starting point from the latter part of the letter from "CONTRIBUTOR No. 6042" on page 66 of the July issue of COTTON, I wish to submit my ideas of setting the backs of cards to obtain a minimum of fly and to clean all the motes possible from the cotton.

I agree with this man that a setting of 22/1000 and 17/1000 for the mote knives do not meet my ideas as to a proper setting, but I disagree with him on the matter of progressive settings, which he does not like. I set to a 12/1000 and 10/1000 respectively, and well on the heel of the knife, for reasons that I shall give. I have on certain individual cards set to 10/1000 and 7/1000, but as a rule find the 12 and 10 to be the best.

To get the best results from a card, a man must learn some of the finer points of grinding or setting cards. Which brings us down to the question of just what are the finer points of setting cards, in this instance the backs?

First one, then the other, gives his idea of the finer points of setting cards. Most of them give a list of setting points, one to this gauge and the other to that. You try their settings on a card and perhaps get good results. Then you go ahead and set a whole line in the same way or as near the same way as you can, according to the usual practice, and on going back and inspecting the results, find that one card is doing one thing and another is doing something else. Why is it that two cards set the same way, as near as possible, will not always do the same work? When you get to looking into this and find some of the reasons for it, then you are getting to some of the finer points of setting cards, and not before. There is more than merely setting to a certain gauge in setting a card, and in some instances it does not make so much difference as to the gauge as we are given to believe. It should be understood from the first that this is written by a practical mill man, and that while some of it is at odds with the generally accepted rules of setting cards, it is the result of my own practical experience and the conclusions that I have reached from those experiences.

Says Gauge Used Not So Important.

How many grinders have set up a card as carefully as possible, and then, on starting it, had it to rub somewhere? Everyone, I am sure. Then, how many proceeded to ease off a little on the part that was rubbing and then let it run until the next setting time, not knowing what sort of a gauge it was set to? And how many have noted that sometimes, and a great many times at that, this particular card did the best work of the whole bunch? Practically all card grinders have had such an experience, although some of them will not admit it. It has occurred here time and time again, and it started me to thinking of just what it was all about and what it meant.

For several reasons which I shall set forth, I do not think it is so important as to just what gauge is used in setting some of the parts of a card.

Relationship of Parts Controls Card.

My contention is that it is the relationship of one part with another, rather than the setting of each part, that controls the card. for instance, take the mote knives. A little experimenting will show that the amount of either white cotton or fly taken out by this part of the card does not depend so much on whether they are set to a 5, 6, 7, 10 or 12 gauge as it does upon the fact that they are set perfectly level all the way across and how far on the heel or toe they are set. Also, the mote knives are blamed for a whole lot of work that they do not do. The lip of the licker-in screen, especially on the two-piece screens, is often set too high and knocks out a lot of fly and white cotton that the mote knives get the blame for. The main thing in setting a card is to control the air currents of the card, to make it blow as desired and not blow as not wanted. If the mote knives are set well up on the toe, there is not left much space for the air to enter between the licker-in and the knives. This will cause some of the air to blow by them, and it will most certainly carry some white cotton and fly with it. I have found that it is not necessary to set a mote knife on the toe to make it take out the motes. It will take out just as much motes when set well back on the heel and will keep the air currents close to the licker-in, which will cause the fly and white cotton to stay where they belong.

"Control the Air and You Control the Card."

In common with many other mills, we have found it necessary to build up on the mote knives of some of our older cards with a piece of wood to close up some of the air space so that the air would not escape at this point. This is rather generally accepted practice, and most mill men are familiar with how it is done. Did you ever stop to think of just why this piece of wood would stop the card from putting out at this point? These pieces of wood do not come in close contact with the licker-in or any part of the card, except the mote knife, and serve no other purpose than to stop up some of the excessive air vents. This brings us back to my contention that when the air is controlled, the card is controlled.

I suggest trying setting some of the mote knives in different positions, some on the toe, some on the heel, and others at different points between, *but* set them all to the same gauge, and watch the difference. Then try the best working setting position at several different gauges and see what difference this makes. I am pretty sure that it will be found that the most difference is caused not by the difference in the gauge used, but by the angle of the knife to the licker-in.

I mentioned just now that the mote knives get the blame for some of the work that the licker-in screen does. This can be easily determined. Take one card that is putting out quite a bit of white cotton and fly, and extend the partition between the mote box and the rest of the card down to the floor by attaching a piece of galvanized sheet metal to it by means of hinges so that it can be lifted up for inspection and cleaning. Then, after cleaning out from under the card, watch and see from which side of the partition

the bad work comes. If it is the mote knives, this will be a good place to try my method.

Of course if the fly is all at one end you will know that the knives are not set evenly or level. But if it is all the way across, re-set the knives to the same gauge but further back on the heel and watch the difference.

Furthermore, this can be verified by watching the cards. Go to one that is putting out in the mote box and watch it for a while. It will be seen that the fly does not drift out from around the mote knives, but is blown out. Then go to one that is putting out motes only and watch it for a while. It will be seen that there is mighty little air coming out around the knives and that the motes seem to fall out rather than being blown out. Also, that they drop directly to the floor under the point where they left the knives. I believe that this is ample proof that controlling the air currents and the relationship of one part to another at this one point is more important than just what gauge it is set to. However, I do not mean by this that you can set off to a 27/1000 gauge and get the same work as with a 5/1000, but better work *can* be secured here by setting to a 12 with the proper relationship to the other parts than by setting to a 7 or even a 5 and not maintaining this relationship. Generally speaking, to take out the least fly, we must set close, but still I maintain that all of your close setting will avail nothing if we do not keep in mind this relationship of one part with another.

The Licker-in Screen.

Now let us go to the licker-in screen. As I have already mentioned, if we set the lip of the screen too high, no matter to what gauge, then whenever it is high enough for the air current following around the licker-in to strike against its face or edge there will be quite a bit of fly thrown out at this point. If having trouble with too much fly, try setting the screen still to the same gauge being used, but lower the lip just a little and raise the back edge as high up between the licker-in and cylinder as possible, also gradually taper up to a smaller gauge from the bottom of the screen. This will be, in effect, like a funnel, open where it receives the work from the preceding part. It will catch all of the work as it comes from the mote knives and gradually close it up so as to present a thin sheet of cotton to the next working part.

And right here is the cause of much bad work from the card. A licker-in screen should be tested with a gauge made in the shape of an arc of the same size as the licker-in for high slats and low slats. Either one is as bad as the other. A high slat will catch the air current and throw out both fly and white cotton, while a low slat will cause the air to spread out and strike the next slat, causing it to act just as a high slat would. Everyone that can use a soldering iron cannot repair a screen, and it is poor economy to let an ordinary mechanic repair a screen, as most of them do not have any means of preventing high and low slats in the screens so repaired.

My advice to anyone who wants to get good work from the cards with a minimum of fly is not to set each point to a certain gauge, but to take each card

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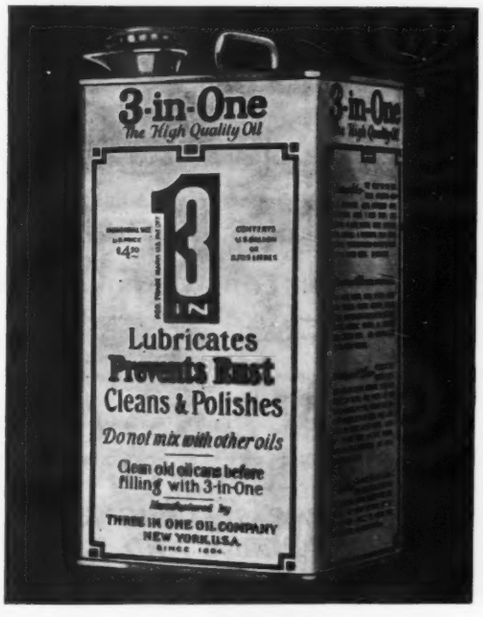

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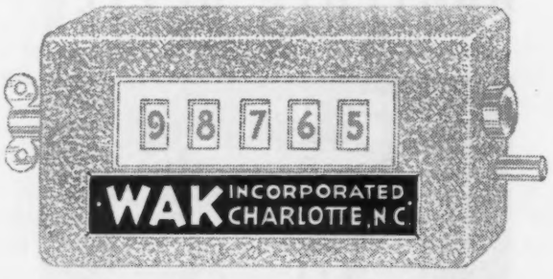

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as an individual machine and set it so it will do what is desired of it, regardless of what gauges it takes to obtain these results. It is surprising that there should be so much difference in two cards that are apparently alike but any man knows that all cards cannot be set alike and produce the same results.

I would set a card as follows, or as near to it as possible, to get the best results. Of course these settings would be varied to suit the individual card. A grinder must get acquainted with each card on his section before he can get the best out of them, but this is as near a set rule as I would go by.

Beginning with the licker-in, set to the cylinder to a 7/1000 gauge. Then remove the licker-in and insert the screen gauge. I suppose that practically everyone uses the screen gauge furnished by the card manufacturer, consisting of a shaft of the same length and diameter of the licker-in shaft, and mounted in place of the licker-in in the same shrouds and bearings. On this shaft is a sliding piece resembling a pipe tee, in the free end of which is an adjustable screw with a lock-nut. If the licker-in is set to a 7/1000 gauge, and the screen gauge inserted in place of the licker-in and the screw adjusted to the cylinder, there is a setting of 7/1000 from the licker-in. Next pull the bottom screen as far up as it can come between the licker-in and the cylinder, a 7/1000 from the licker-in and a 10/1000 or 12/1000 from the cylinder. It is important to close up as much as possible of the space between the licker-in and the cylinder, and the higher the screen is placed at this point the less fly will be taken out. Then set the licker-in screen to a 5/1000 from the screen gauge at the bottom, which, as there is 7/1000 on the adjustable gauge, gives a 12/1000 from the licker-in. This setting should be made on the last slat of the screen away from the person doing the setting, the others being governed more or less by how far the lip of the screen is pulled down. If having trouble with too much white cotton or fly under the card, pull the lip of the screen down quite a little bit further than previously. By the time a few tries have been made it will be determined just about how far to pull down here to get the best results. Once this point has been determined, a small block gauge can be made to use at this point which will give approximately the right setting. This will vary slightly with different cards, even of the same make.

A "Progressive" Setting on Screen.

Setting the licker-in screen in this manner gives a wide opening where the screen first receives the cotton so that it will take all of it and gradually closes up from a No. 12 at the bottom to a No. 7 at the top. It will be noticed that most of the tapering has effect after the work has passed the slats of the screen so that none of it can get out. This also presents the cotton to the cylinder in a close thin sheet so that it can be picked up at once and carried on to the next working part.

Now, finish setting the bottom screen, beginning with a No. 12 at the back, tapering up to a 34/1000 at the front. Some prefer to use the button on the gauge at the front, while others use two full gauges. Any of them are all right if they give the desired results.

And that is what we want, results, regardless of the gauges necessary to produce them.

And right here let me say that the grinder who will not take the trouble to set the bottom screens level so that no fly will blow out at the sides of the arches, either has no business setting cards or has never learned to set them.

Now, replace the shrouds on the licker-in and place it in the card, and then set the mote knives. I have already given my ideas as to how they should be set, so there is no need of repeating.

Next, replace the feed plate and set it to a No. 12 gauge. While I have obtained the best results with this setting, others may get better work at some other gauge; if so, let them by all means use it.

To sum it all up, I say discard a rigid list of settings. Find out what the card is wanted to do, then, taking each card as an individual machine, set it to where it will do the work, even if every one is set different. Generally speaking, for a small amount of fly, set close at all points. If a card is watched, underneath, for a few minutes after it is started up, it can be determined readily if the air is blowing out at any point where it is not supposed to blow. All motes and fly should drift down slowly from the point of leaving the machine, and build up in even layers all the way across under the card. If they do blow out forcibly or pile up at one end or the middle, the card is not set properly. The part which is not doing its work properly can be readily located, and a man should then go back right then and vary the settings to the point where it will work as desired. Let's throw away our rule of this gauge here and that gauge there, and use the old head for something besides a hat rack, and then we will be getting somewhere.

CONTRIBUTOR No. 6086.

Answers to Fly Frame Questions.

EDITOR COTTON:

I should like to comment here on some of the questions submitted by "J. R. (GA.)" on page 58 of the March issue of COTTON. He wanted to know if wrapping the roving on the flyer presser two and a half wraps is indispensable. I think so. A soft bobbin which will tangle the roving will result if it is not wrapped two and a half times. You can ask any frame hand. Also, it will not run even in the next creel and will be light when weighed and I think you will find most men are agreed on this.

As to his next question, I do not think that any man should be allowed to fix a machine except a well trained and skilled section man—that is, unless a mill wants a junk yard.

I think that section men should be utilized for what they are intended and that is to fix the machines and see that the help do their work right. If a man wants to make an oiler out of a section man, then he should get another man to fix the machines, and I certainly do not think that a section man's wages should be cut while a part of his job is standing. As to having each frame hand mark his own roving or having a roving marker to do this work, it costs a little more to use a roving marker, but it is the only way to get good work.

W. D. W. (S. C.)

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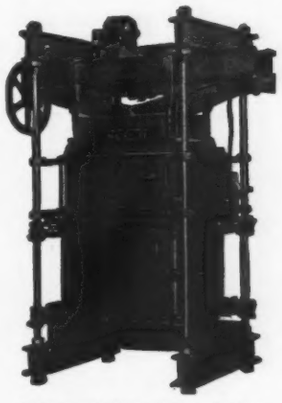

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A Kink to Give More Weighting to Card Feed Rolls

EDITOR COTTON:

Here is a little idea, or "kink" that may be of help to some of your readers in connection with their cards.

At one time, part of our cards were weighted at the feed rolls, as shown in the sketch, Fig. 1. These cards gave a great deal of trouble in damaged lickers-in and clothing due to the fact that the feed rolls did not return to their normal position quickly enough after being raised by a small lump, choke or doubling. Heavier weighting did not seem to help the situation much, so we resorted to the method shown in Fig. 2.

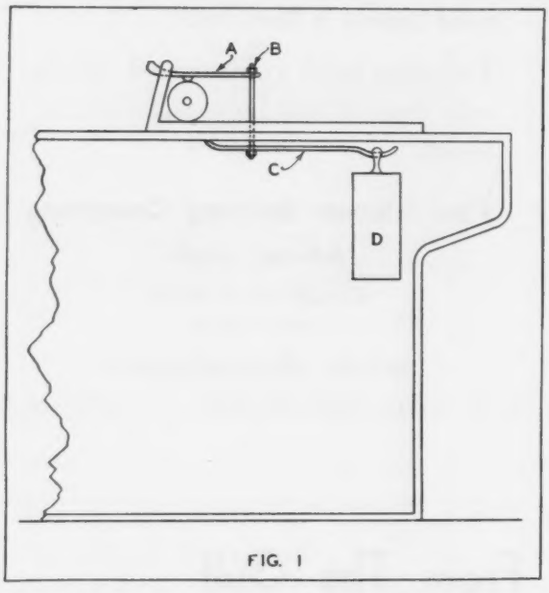

FIG. 1

The long lever *C* was cut off about ½-inch in front of the hole for the bolt *B*, placed on top of the short lever *A* fastened to *B* with a ⅜-inch bolt *G*. There are small projections on the bottom of the lever *C* that will prevent it from turning, and the one bolt will hold it rigid. A slot *F* was cut through both the feed plate and the frame of the card to allow the hook *E* to come through, for hanging the weight *D*. This slot should be at least one-inch long to keep the hook from binding when the adjustment of the feed plate is moved. The hooks were made from ¼-inch rods with an eye at the top for lever *C* and a hook at the bottom for the weight *D*.

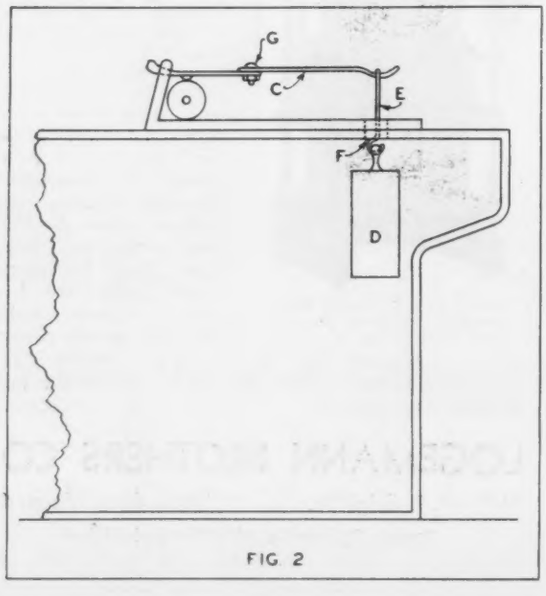

FIG. 2

This gives direct instead of compound leverage, and we have found that it overcomes the trouble completely.

The main cost of making this change is the labor, and that is small. All the parts required are two bolts for each card and sufficient rods to make the hooks. The settings of the card do not have to be disturbed. Merely stop off the card, remove the weight *D* and the two levers, cut off *C* as shown, and bolt to *A*. Then place in position and mark the point where the hook will go through the feed plate. Bore two ½-inch holes at this point, one on each side to the point marked and almost touching each other. Knock out the plug between the holes with a cold chisel, and the slot is made, and the parts assembled and the card is ready to start.

I shall be glad to answer any questions about this "kink," and would like to hear from any readers who may try it.

CONTRIBUTOR NO. 6184.

An Opinion on the Subject of "Textile Graduates" and "Practical Men"

EDITOR COTTON:

I would like to make some comments in connection with the article of "WASH (R. I.)" in the December issue of COTTON with respect to textile school graduates. There are good textile school graduates, there are also poor ones. There are good practical men, there are also poor ones. The good textile school graduate is open to reason and will learn rapidly; his training should be supplemented by practical experience of course before being placed in charge.

One realizes that there is a difference in mixes of cotton, and I have seen even with practical men at the helm a wide variation of numbers occur due to variation in roving sizes that the practical man had failed to catch in time.

I have the greatest respect for the practical man who has plugged along and has forged ahead. I also have respect for the textile school graduate, especially for the one who may have come from a family of moderate means and has put his labor and money into the acquisition of a technical knowledge of manufacturing.

Perhaps he cannot answer all of the questions that the practical man can. Perhaps too the practical man arrives at problems that he has difficulty in answering. I say that both should be given credit, depending entirely upon the individual, and not upon the label of practical man or textile school graduate, but upon the initiative and general ability of each to grasp and solve problems as they arise.

As to "WASH (R. I.)", I have considerable respect as to his ideas and beliefs and credit should be given to him for them. He has submitted four questions

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which he says any practical man could answer and they are fine examples of a series of questions and answer type articles that could be submitted, I am sure, by "WASH", creating probably considerable discussion and at the same time enlightening each and every one as to problems that might arise.

I submitted these questions to a practical carder, and he is quite desirous of seeing the answers that "WASH" will give as he is not positive of his replies to them.

"WASH'S" fourth question in the list published on page 83 of the December issue asks, "On a fly frame we have a taper of 27 degrees that caused the roving to run over and under. We have no taper gears on hand, but must remedy the trouble. How is this done?"

The practical man to whom I submitted these questions stated that on the English type of builder he would alter the length of the traverse to take care of this trouble. He did not give a definite reply on the American type of builder.

There is one further point I should like to bring out in connection with the practical man and the textile graduate, and that is that the practical man considers that the textile student would be an expense, that is "WASH" says so in his paragraph on light and heavy work. Is it not true also that the experience gained by the practical man is often gained at an expense; he profits by other people's experience and also by his own mistakes which are expensive too. Think that over carefully.

I should like to see "WASH" give a very thorough series of questions and answers pertaining to the large and also the minute details of a card room, for there is no doubt in my mind that he is just the one who can do it. In this way he may help some of the more inexperienced to acquire knowledge without that added expense to the mill.

CONTRIBUTOR NO. 6211.

Answers to Card Room Questions.

EDITOR COTTON:

On page 58 of the March issue of COTTON "J. R. (GA.)" asks a few questions which I would like to try to answer as the matter appears to me.

His first question was, "Do you think that wrapping the roving on the flyer presser 2½ wraps is indispensable? A wrapping of 1½ times will allow a small bobbin to run, and by just placing the roving in the presser eye will make possible the running of a bobbin that has had a layer removed, and not make it necessary to break this end back, however, this bobbin will be soft when doffed. Is this practice justified?"

I would answer this by saying that I believe that at most mills it is a practice for most speeder tenders to wrap the end around the presser less than 2½ times when a bobbin is of smaller diameter and there is trouble in keeping the end up. I do not, however, approve of this method. I believe the proper method is to break the end back, starting a new bobbin on the next doff. Whereas, a bobbin with less than 2½ wraps may run all right at the next process, there is always danger of shelling off with a soft bobbin. If

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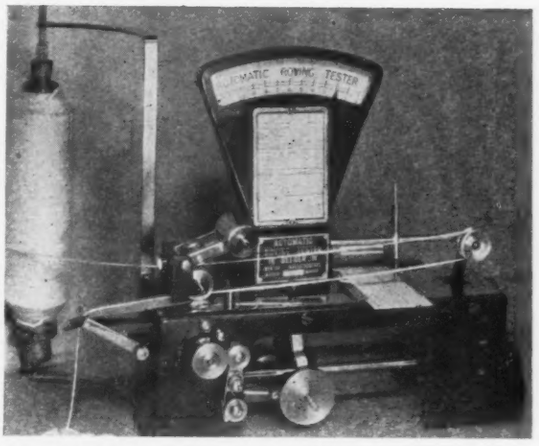

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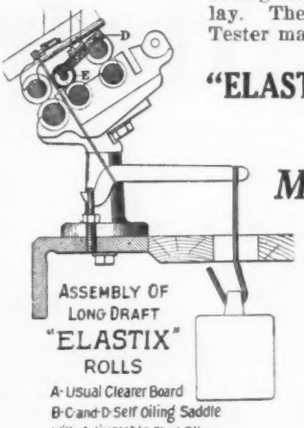

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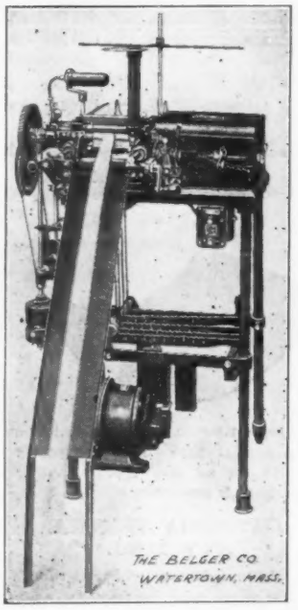

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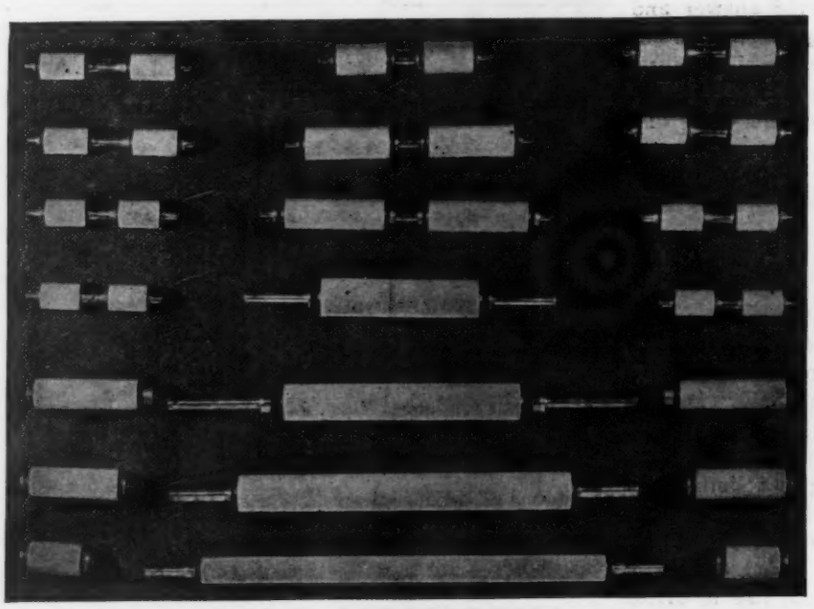

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a speeder tender watches the work closely there should be no occasion to use less than 2½ wraps.

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I take it that this means piecing up of ends. If this is what it means, I would say No. Each tender should take care of his own frames, thereby eliminating any chance of someone else making a bad piecing. There are exceptions, however, should a tender be called away to the office or otherwise away from his work, the nearest tender should keep the frames running.

This man next asked, "Does dyed cotton always require more twist than white cotton?" Not having had much experience with dyed cotton I cannot answer this. I may say, however, that what little dyed cotton I have used, had the same twist as white cotton and worked all right.

"Should a section man do his own oiling, or should an oiler be put on and the section man's section increased?"

I would say that this is a matter of opinion. We do not have any of our section men do oiling but employ oilers for this work. We expect our section men to keep the frames running and to be on the alert for any bad work. If a section man were required to oil up I would say that it would not be right, because we will say that if he has just started to oil and a break occurs, he is going to neglect either the oiling or the frames. Both are very important items. I would say oilers to oil, section men to fix and keep the frames running.

This man then asks, "In the case of a portion of a section running and the section man doing other work, such as laying up roving, etc., should the section man's wages be cut or should he be paid his regular rate?"

I would say without any question that his pay should be kept at the regular rate. It would only be a very small difference and by keeping the good will of the section man he will more than repay the mill with little jobs he may do. If a section man is not worth his regular rating when a portion of his section is stopped, I would say that he is not the man to have on a section.

"Is it best for each frame tender to mark his roving, or is it best to have a roving marker?"

There is no question that a roving marker is best, and the roving should be marked when half full. With conditions as they are and mills trying to save every cent, I believe that most mills are in the same boat as we are. We do not use a marker but have the tenders mark the roving. By checking up on them occasionally we have very few unmarked bobbins. However, as stated, a marker is the best policy.

CONTRIBUTOR No. 6225.

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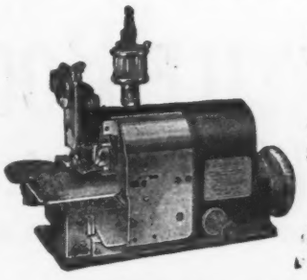
At a recent meeting of the executive committee of the Cotton-Textile Institute, Captain A. M. Fairley of Laurinburg, N. C., chairman of the carded yarn group, was elected to membership on the Institute's board of directors. Other mill executives elected to the board included W. W. Coriell, president, Nashawena Mills, New Bedford, Mass., Gordon Harrower, treasurer, Wauregan-Quinebaug Mills, Danielson, Conn., and Ralph Perkins, treasurer, Pilgrim Mills, Fall River, Mass., and Queen City Cotton Company, Burlington, Vermont.



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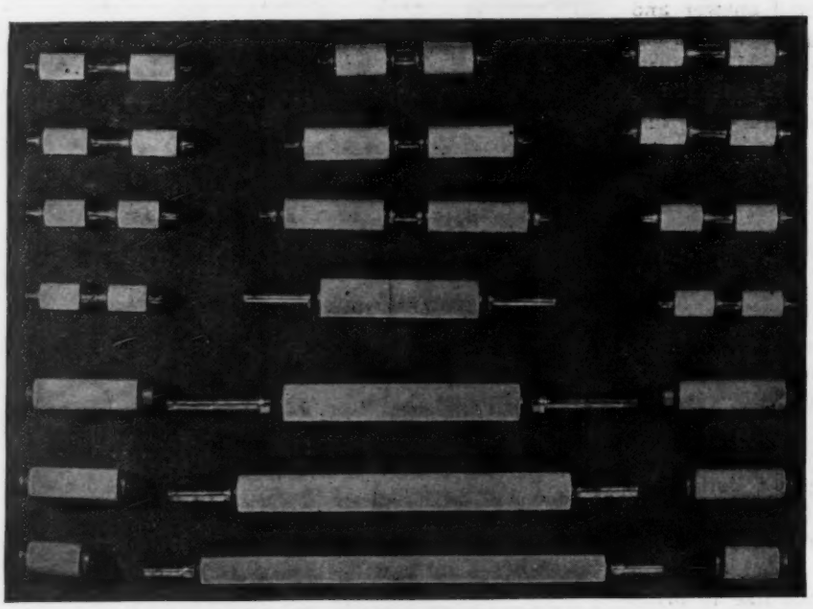

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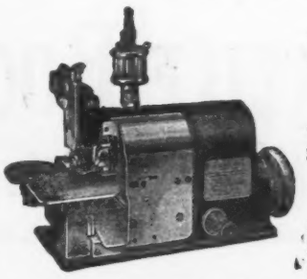

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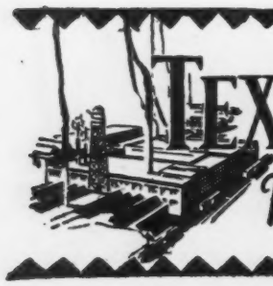

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The booklets or catalogs briefly mentioned below may be obtained by any readers of COTTON who will write to the Company issuing them or to COTTON, Grant Bldg., Atlanta, Ga.

91. Illustrated Buyers' Guide and Catalogue—Of interest to every dyehouse executive, not only telling what dye house equipment is available in Monel Metal but also where to get it. The International Nickel Co., Inc., 67 Wall St., New York, N. Y.

92. Silicates of Soda—A review of the properties of silicates of soda and their various uses. Philadelphia Quartz Co., 121 S. Third St., Philadelphia, Pa.

93. Metso — Describing this industrial cleanser which has wide use in industrial cleaning of metals, floors, etc., and is used in kier boiling, silk and rayon degumming. Philadelphia Quartz Co., 121 S. Third St., Philadelphia, Pa.

94. New Development by Onyx—Eight-page booklet describing and giving uses of new developments in sulphonated aliphatic compounds . . . called Aliphatic Ester Sulphate and Glyceryl Sulphates. Onyx Oil & Chemical Co., 15 Exchange Place Jersey City, N. J.

95. Onyx Processing and Finishing Compound Catalog—A thirty-two page booklet listing and describing entire line of processing and finishing compounds, covering every process on all types of fabric. Onyx Oil & Chemical Co., 15 Exchange Place, Jersey City, N. J.

96. R. & H. Non-Flammable Solvents—describing the characteristics and many uses of non-flammable solvents. R. & H. Chemicals Dept., E. I. duPont de Nemours & Co., Wilmington, Del.

97. Suggestions For The Modern Silk and Rayon Throwster — describing the various uses for Laurel Brand Products and giving valuable suggestions in silk-soaking, degumming, dyeing, sizing and finishing. Laurel Soap Mfg. Co., Inc., Tioga, Thompson & Almond Sts., Philadelphia, Pa.

98. Saving Labor, Material and Power in the Textile Industry. A 20 page booklet showing the advantages and typical installations of temperature, pressure and humidity instruments and controllers in various processes of textile manufacturing. Foxboro Co., Foxboro, Mass.

99. Bulletin 177, Temperature Controllers. 48 page booklet describing and illustrating the various types of controllers, charts, valves, etc., and their industrial uses. Foxboro Co., Foxboro, Mass.

100. Bulletin 174, Controlling, Recording, Indicating Instruments for Temperatures, Pressures, Humidity, Flow. 40 page booklet illustrating with installation photographs the uses and advantages of instruments built to meet definite requirements. Foxboro Co., Foxboro, Mass.

101. Bulletin No. 169-1, Recording Thermometers. 48 page booklet describing and illustrating how the installation of proper instruments will result in worth-while savings. Foxboro Co., Foxboro, Mass.

102. White and Light Shade Cotton Fabrics Dyeing and Finishing. National Oil Products Co., Harrison, N. J.

103. Throwing Rayon Crepe. National Oil Products Co., Harrison, N. J.

104. Warp Sizing. National Oil Products Co., Harrison, N. J.

105. Mildew Prevention. National Oil Products Co., Harrison, N. J.

106. Cotton System Warp Sizing on Multiple Cylinder Machines—an analysis of the advantages of this type of machine in making warps of acetate and other synthetic yarns, and spun silk—Charles B. Johnson, Paterson, N. J.

107. Complete Information on Alemite Lubrication. Showing how costs can be reduced through proper lubrication. Alemite Corp., 2682 N. Crawford Ave., Chicago, Ill.

108. Thickening Materials for Textile Printing—discussing the more important materials and methods employed in the preparation of color thickenings so that it may be properly and economically transferred to the cloth in textile printing. Stein, Hall & Co., Inc., 285 Madison Ave., New York City, N. Y.

109. Some Properties of Starch and Dextrine—Explaining certain fundamental properties of starch and its derivatives and their action when heated and agitated. Stein, Hall & Co., Inc., 285 Madison Ave., New York City, N. Y.

1. Cotton Picking, Carding and Spinning—Covered by three different catalogs. Picking catalog covers Opening and Picking Machinery; Card Room catalog covers Cards, Combers and Roving Frames; Yarn Machinery catalog covers Spinning, Twisting, Spooling, Quilling and Reeling. By Whitin Machine Works, Whitinsville, Mass.

2. Pepperell Equipment—10 page illustrated booklet showing High Speed Warping from cones as adopted by Pepperell Manufacturing Company after thorough experiments, installation and product photographs. Issued by Universal Winding Company, Boston, Mass.

4. New Methods of Opening Cotton, also "Brown" Automatic Mixing and Cleaning Distributor — Illustrated booklets showing advantages of Centrif-Air Cotton Cleaning System. Pamphlets also on better picking and carding and pneumatic trunk line cleaner. Issued by Centrif-Air Machine Company, Atlanta, Ga.

10. Leathers, Textile—Booklet No. 101, 48 pages. Illustrated. Showing BONDARON Check Straps—Lug Straps—Harness Straps—Pickers—Belting, both round and flat, etc. Horsepower tables and other interesting information. By Charles Bond Company, 617 Arch Street, Philadelphia, Pa.

11. Whitinsville Rings—16 page illustrated booklet. Describing ring manufacture, measurements, types, uses. How to determine flange sizes. By Whitinsville Spinning Ring Co., Whitinsville, Mass.

15. The Powers System of Thermostatic Control—"Slasher Room is Bottle-Neck of Textile Mill." 18 page illustrated booklet showing importance of proper treatment of cloth in slasher room and advantages of Thermostat over hand control. Also room temperature control illustrations. Issued by Powers Regulator Co., 2739 Greenview Ave., Chicago, Ill.

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25. "Lupogum" and "Monopole Oil"—Two booklets on textile sizing and finishing products. Jacques Wolf & Company, Passaic, N. J.

28. Akron Belting.—Practical Rules and general information for users of belting with belting catalog. By Akron Belting Co., Akron, Ohio.

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30. Lubrication of Textile Machinery—32 pages, illustrated. Data covering the economical lubrication of all textile machines. New York and New Jersey Lubricant Co., 292 Madison Ave., New York, N. Y.

38. Slaziness in Full Fashioned Knitting—Illustrated survey with samples of fabric showing causes of sleaziness and methods to be employed in eliminating it.—By Textile Machine Works, Reading, Pa. (This company also issues parts catalog for Reading full fashioned machine with general information on subject of full fashioned knitting.)

55. Interpretation of Analysis for the Layman—An eight page booklet explaining what the various terms used in fatty oil and sulfonated oil analysis mean, enabling the ordinary textile man without chemical education to interpret the various chemical analyses. National Oil Products Co., Harrison, N. J.

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59. Vat Colors and Their Oxidation—A revised edition giving information and methods of the dyeing, printing and Perborate of Peroxide "fixation" of vat colors. R. & H. Chemicals Dept., E. I. duPont deNemours & Co., Wilmington, Del.

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69. Monel Metal Equipment for the Textile Industry—a 50-page buyer's guide and catalog with more than 100 illustrations of various items of monel metal dyehouse equipment. International Nickel Company, Inc., 67 Wall St., New York, N. Y.

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75. The Facts About Armstrong's Seamless Cork Cots—A helpful book containing plain facts, cost studies based on actual mill records, expert analysis, complete details on the advantages of Armstrong's Seamless Cork Cots. Armstrong Cork & Insulation Co., 923 Arch Street, Lancaster, Pa.

77. Bulletin S 200—Illustrating and describing the new Reeves Variable Speed Drive for spinning and twister frames, explaining its many distinct advantages, and giving charted results of exacting tests. Reeves Pulley Company, Columbus, Indiana.

78. Booklet L 1289 A—Loom Motors and Control—giving details of the low installation, operating and maintenance cost of Westinghouse Loom Motors. Westinghouse Electric & Manufacturing Company, Room 2 N, East Pittsburgh, Pa.

88. Dayton Cog Belt Catalog—a 32 page booklet full of vital information on power drives, plainly and simply assembled and arranged so that anyone can select the proper standard drive for any condition. It also provides data for the calculation of drives where acquired. The Dayton Rubber Mfg. Co., Dept. C-11, Dayton, Ohio.

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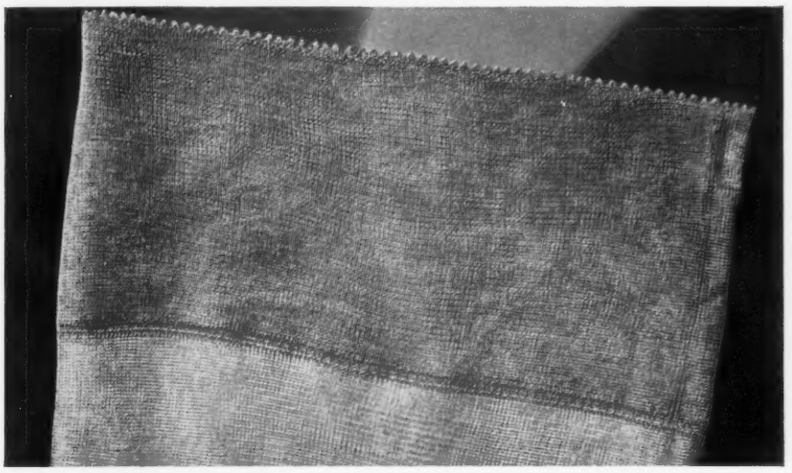

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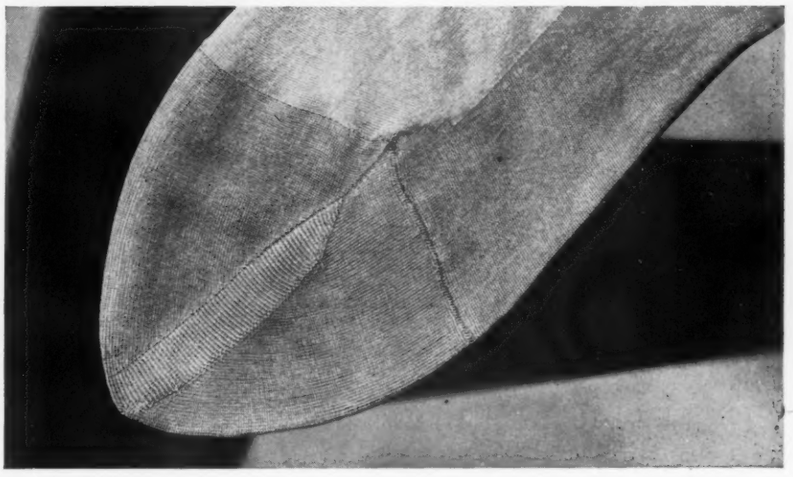

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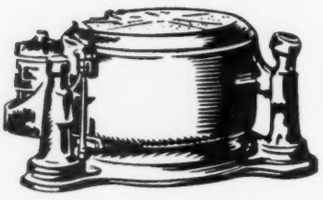

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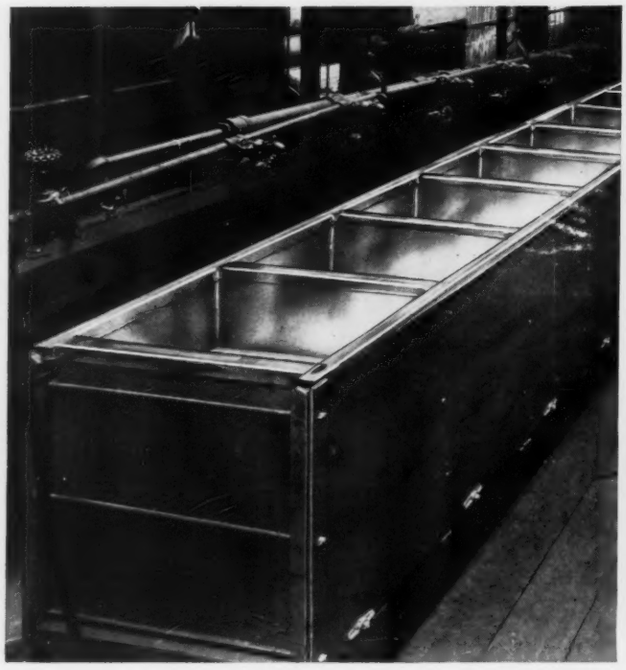

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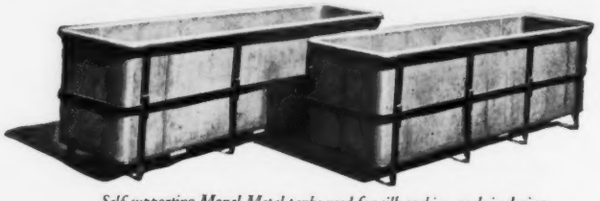
Lessons learned by hosiery dyers lead to wide adoption of Monel Metal soaking tanks and extractors



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Boarding Full-Fashioned Hosiery

A discussion of the various methods of accomplishing this important work; and some practical suggestions on operating a boarding room

By Wilbur Bentzel
Ajax Hosiery Mills

THE subject of boarding full-fashioned hosiery is one upon which very little has been written. Every other phase of the hosiery industry has been given scientific observation and recorded in detail, but for some reason or other the pressing of hosiery into shape has been neglected. To some extent this article will try to rectify this oversight and show the reasons why boarding is of prime importance and how the proper handing of the stocking in this department will mean a great deal to the final finish of the merchandise as to quality and yield in firsts.

There are a number of ways in which a stocking can be boarded. There are generally two principles employed: First, bringing the heat from the outside to contact the external surface of the stocking; and second, bringing the heat from the inside to contact the internal surface of the stocking. The first method, or external heating, will include the wooden board and the automatic machine method; the other, the internal heating plan, includes the hot-water, steam, vapor and electrical forms.

Boarding.

The name "boarding" comes from the original method of pressing stockings into shape. This was the pulling of the fabric on a wooden board, and then placing the board in a hot oven to dry the moisture from the stocking. After the stocking has been sufficiently dried the board is taken from the stocking, and the stocking is pressed in shape. We still refer to the pressing of the stocking as "boarding," even though we do not use the older method. In this discussion we will take up the several methods of handling the stockings, but principally the external heating method rather than the internal. Both of these ideas are in practice today and it is an open discussion as to which has the most merit. It cannot be denied, however, that the original method of using a wooden board in an oven has a fulling effect which you do not get from any other system, so we will first consider that original form.

The first step in considering the pressing of stockings into shape on wooden forms is the shape of the forms the kind of table to be used and the box that the merchandise is to dry in. The shape of the forms is decided upon by the management and is usually determined by the method in which the stockings are knit, so that the wooden board conforms to the proper shape of the knitting and also narrows the stocking down at the proper points to give it graceful curves and saleable beauty. These wooden forms are made according to special order and their shape is a matter of firm policy rather than for any other reason. The narrower the board, the more length you will get from the fabric, and the wider the board, the more material you will have to put in the stocking to get the prescribed length. The shape must be considered from all angles but after all there is an economic influence on the shape as well as the beautifying influence.

Next comes the table and here we have to consider durability as well as flexibility. A special block which has a clamping effect on the board has to be procured and attached to the table. There is generally being used at the present time a very heavily made table with a linoleum top and a special patented clamp which holds the bottom section of the board in place by the contact of the body against the clamp. Two men usually work at a table and they are placed diagonally opposite each other on their right-hand side of the table so that when they strip their work they lay off to the left.

There is a lot to be said about wooden boarding. In the first place, the placing of the stocking on the wooden board and then taking twelve of these boards together and putting them in a dry-box has a fulling effect, that is to say the vapor and moisture coming from these boards fairly close together brings the nap of the stocking up, and fulls it, which gives it a much better and more wholesome appearance. We have found from our experience that wooden boarding gives this much better finish and for that reason

A part of the Ajax boarding department

we handle all of our samples on wooden boards as well as re-boards and special lots.

To begin with, when teaching an operator boarding it is necessary to impress him with the importance of his work. Right in this department, many a stocking can be saved from the sub-standard group and put into firsts by proper handling and the proper setting of it on wooden boards. Operators should be impressed with the importance and skill of their craft. They should be inspired with the idea that their work is of such importance that it is through them that the stockings receive their original quality appearance that finally draws the customer's eye for the sale. Care should be taken to instruct the operator about the neatness of the work which they do and the care of the hands in the handling of the stockings.

In boarding full-fashioned merchandise on wooden boards the first step is to procure twelve wooden forms of the size that you are boarding, placing them to the right piled up twelve high, with the foot away from you. The next step is to place one of the wooden forms into the clamp holder, the welt part in the wooden holder and the leg extending vertically up. You then pull the stocking on the form with both hands over the foot section of the board, setting the toe.

The heel is then pulled over the heel part and set, and the balance of the stocking pulled down part way while the heel is being put in place. From that point on, you pull down to get your length, placing your left hand back of the welt and the right hand in front of the welt. You will have to be careful not to knuckle or finger-mark the merchandise at this point. You then set the seam and after that square the welt. There are a number of essentials to bear in mind in setting the various parts of the stocking. In the first place the toe must be set so that it has a balanced appearance when the merchandise is finished. If it has a re-inforcement or a block it must be evened up so that one part of the block will be on one side of the stocking and the other part on the other. The foot also must be pulled across sufficiently so that the heel will set properly. If it is not pulled across enough the heel is likely to assume too wide a proportion, or if it is pulled too much, too narrow a proportion. The heel should be set so that the looping comes exactly at the top and stands out like a comb. The heel, when it is pulled down, should be blocked off so that the merchandise is easy to pair and gives a clean-cut appearance. The seam must also be set regular and care should be taken that at the welt the seam is brought down without any wrinkles. All through the process the stocking has to be handled in a very careful manner so as not to make finger-marks or any finish streaks across the surface. This is caused by pulling too violently across the stocking. Then again we must consider the length. It is right here at this operation that a lot of short lengths can be avoided. Sometimes an extra pull or a change to a narrow board will avert a lot of short lengths being put out for irregular merchandise. All wooden boards should have a marking on them showing the length required so that the operator can strive to reach this point. If the lengths are impossible to reach the Superintendent should be notified to make a change.

After these twelve boards are filled the merchandise is carried to an oven which is called a dry-box. The stockings are placed in a rack after the door has been opened and put down in the box, setting on their edge in a vertical position. This box contains a number of steam coils and a fan which circulates the very warm air, drying the stockings in a very short time depending upon their weight and the amount of heat. After the stockings have been sufficiently dried they can be taken out of the box, but in the meantime the boarder is working on another set ready for the box, so that as one set is being taken out another is being put in. When the first set has been laid out and put on the table, twelve high longways in front of the operator, they are stripped. The heel is grasped by the left hand and the board is extracted by a pull and arc motion with the right hand, so that as the board is being pulled out it is also being pushed away from the operator. This pulls the board completely out of the stocking without any chance of tearing or ripping and at the same time leaves the stocking right on the surface of the table. The stockings are then picked up and piled in front of the operator and this process is continued until the entire twelve boards are stripped at which time the process of putting the merchandise on the boards is begun again.

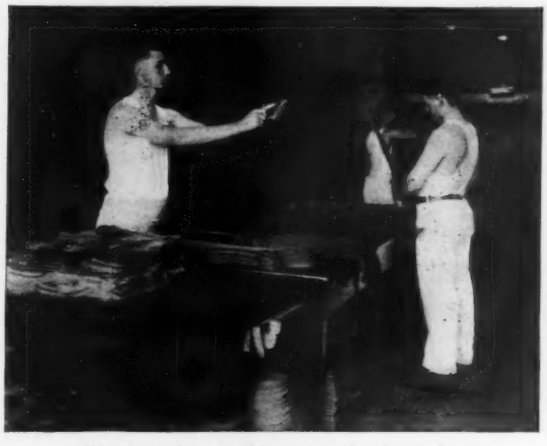
Automatic Boarding.

The automatic process is practically the same, the principle is identical. The stockings are pulled on the boards and these boards come in contact with heat which dries the stockings. It is an external heating method. The automatic machine, an illustration of which is in this article, and this machine contains thirty aluminum forms. This is what we term a double operator machine. One operator pulls the stocking on the form and sets the foot, the other operator sets the seam in the leg and fixes the welt as well as the length. The last operator named is called the boarder and the other is the helper. This machine has a cone pulley arrangement which regulates the speed. There are five speeds to this machine, which means that the machine can go through from a production of fifty dozen to two hundred dozen in a ten-hour day. The speed is changed due to the fact that the operator will not be able to set the stockings on properly beyond a certain speed if they are not skilled enough, and also the quickness of drying has a great deal to do with the speed. In order to follow up this process carefully we will go through the boarding of some stockings. There is a hood shaped apparatus in front of the machine which holds the damp stockings as they are received from the dyehouse. The helper pulls the stockings on the forms as they are slowly passing in front of him. All of these forms are attached to an endless chain which rotates around the front of the machine, through the box in the drying end and back again to the operator. The boarder then sets the seam and welt and pulls for the length. A clamp comes up holding the welt down and the stocking turns and

goes into the heated box. It stays in the dry-box for a matter of a few minutes and then comes out thoroughly dried and pressed into shape. It drops down and a finger arrangement grasps the heel and toe and the board is extracted, due to the fact that it is still attached to the endless chain and it pulls away from the stocking. The stockings are then piled. After twelve stockings are placed on the table, the table automatically moves over, starting another pile of twelve. The entire table will hold five dozen. When the table is filled the machine is stopped and the helper and boarder pile the work unless there is a special operator who is assigned to this task.

Internal Drying.

The several different means of internal drying have been mentioned before. The oldest method is probably the steam form. These steam forms are set up on a long table and are usually made of aluminum or a special metal and there is a steam jacket on the inside which permits steam to circulate continually through the forms thus keeping the outer surface hot. The stocking is pulled on this form, set in position, allowed to dry and after it has been thoroughly dried it is pressed into shape by the drying process and is stripped off by the operator. The operator begins at one end of a long table where there are a number of forms projecting vertically upward, puts on the work, and advances down the table. By the time the operator reaches the end of the table the first section is ready to strip. It is then stripped down and the process begun over again.



Placing the stockings on the boards

Vapor forms and hot water forms as well as electric forms are run on the same principle. Here the shape of the form has a great deal to do with the boarding and of course there is a lot to be said about each method. One is of a fast drying effect, another possibly slower, and before considering going into any one of these special processes, the nature of the fabric must be studied. A heavy weight stocking with possibly a cotton top requires quicker drying than a chiffon hose of two or 3-thread which if it dries entirely too fast will crease and make for bad boarding.

Necessity for Knowledge.

While on the subject of boarding there are a number of things that one should keep in mind. In the first place the condition of the work arriving from the dye-house is extremely important. Only experience will teach you how to handle the boarding of the various kinds of work. Work is almost temperamental; weather conditions have a great deal to do with how a stocking will react under heat and also the method of dyeing has an important bearing on how it will finish up. The work arriving from the dye-house should come in under certain conditions. We have always insisted that our work come through fairly damp so that we will not have to re-wet it unless it is absolutely necessary. This preserves the finish as it is not washed out in the re-wetting process, however, there are occasions when work is piled up a little too far ahead of the boarders, and we have found it necessary to re-wet this work and for that purpose have a special extractor on the floor which we use to wet up work and extract the excess water. Before the work is given out to the boarders it is sorted to determine the proper count and to see that there are no mixed styles or sizes, and one stocking is tied around twenty-three, making a bundle of twenty-four, so that when an operator receives the work the stockings are already counted, sorted out and ready for boarding. We place the stockings on a special table which is kept moist by being kept covered with a damp cloth so that the stockings are always in a condition that they are ready for the boarder to start with at any time he is ready. Occasionally during the very warm weather it is necessary to wet the stockings once or twice but we try to avoid this as much as possible due to the fact that the finish is affected and we do not get as good results as if we had the stockings boarded from the original liquor.

One of the essential features of the boarding department is color matching. The head of the boarding department matches the colors from a set of samples that he has there or special samples sent into the department with each lot. These colors have to be matched in a direct light and the head of the boarding department must be very careful that no color reflections get into the samples. If the color is not right the merchandise goes back to the dye-house for an extra bath to bring it up to the proper shade. The finish is another essential that is necessary to watch as well as any trouble that may have developed in the dye bath. For this reason we have always made a practice of examining the first set from each machine. It should be brought up to the head of the department to examine, not only for color, but also for finish, dye-spots, sleaze or anything that might have occurred on account of improper dyeing. If a lot is not as it should be, then it goes back to the dye-house for re-touching. If it is satisfactory it is O.K'd., and passed through. It is also essential to examine each size as well as each lot, because quite often it so happens that the dyer may

(Continued on page 86.)

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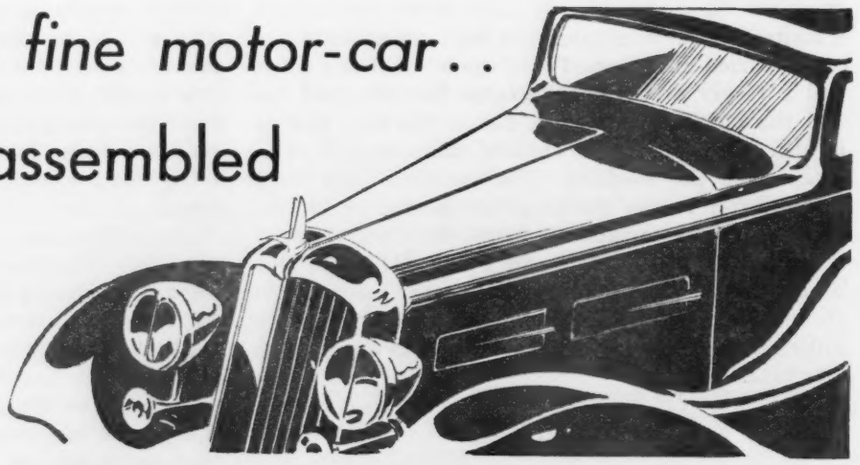

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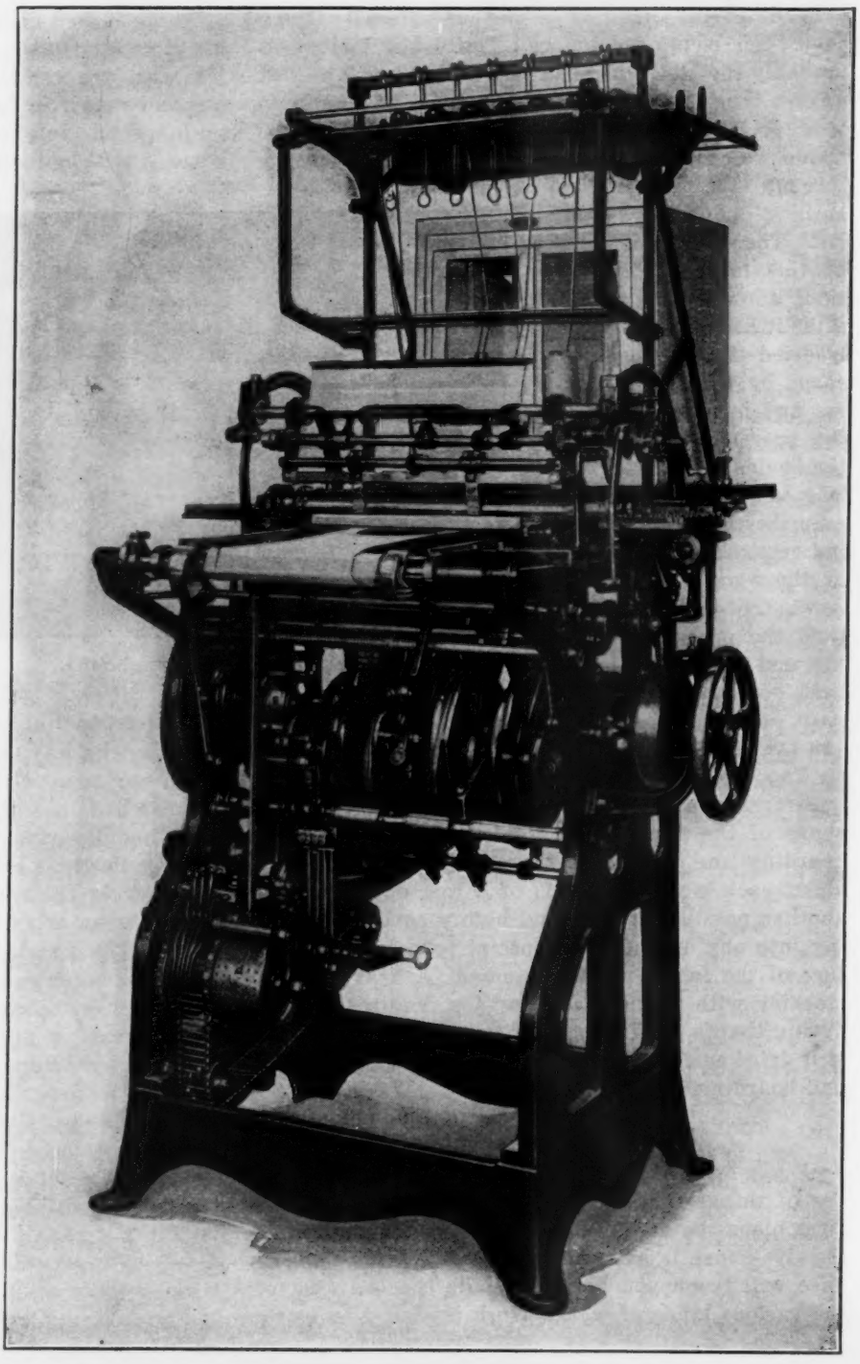

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A Discussion on What to Do About Worn Striking Jacks

Preventing uneven fabric on full fashioned machines. Do your striking jacks wear evenly or unevenly?

EDITOR COTTON:

This is in answer to the question on page 93 of the May issue of COTTON from "CONTRIBUTOR No. 6214" who asked: "What is the best method of correcting uneven fabric, tight and loose streaks, in full-fashioned hose, caused by unevenly worn striking jacks in the jack head, or what is the best method of standardizing unevenly worn jacks in full-fashioned machines?"

From our experience unevenly worn striking jacks are mostly found in old machines without the high quality steel employed today. During the last few years the method of slotting the guide bars has been changed by the manufacturers of knitting machines so that the spacing between combs is decidedly more accurate, and with the additional improvements in evenness of thickness in combs as well as jacks, the wear and tear of jacks has been practically eliminated.

Our method of repairing jack heads on old machines consists of removing the bed, clamping it to a vise, checking over the individual jacks and removing those that are tight; replacing them with good ones, subsequently filing the entire jack bed evenly. However, our experience tells us that such repairs will only last one year on an average. The best remedy, therefore, seems to be to us modern jack beds.

Since this man mentioned the matter of tight and loose streaks, perhaps some further discussion on this may be of interest at this time. There are various methods of correcting full-fashioned hosiery fabrics showing tight and loose lines. Considering that the causes for these defects are due to old worn out needles and sinkers mixed with new ones, worn striking jacks and verge plates, the following outline will give a fairly correct course of procedure, according to the seriousness of the trouble and the gauge of the machines.

1. Exchange needles where tight and loose lines appear.

2. Re-space entire needle bar and replace worn grooved needles with new ones.

3. Re-grind verge plates if worn unevenly.

4. In case of worn out striking jacks replace one section with new jacks and use the best of the old ones for the remainder of the machine where lines are noticeable. If necessary repeat this in the second and third section.

5. In extreme cases the machine should be re-needled and sinkers and jacks replaced. The best of the old needles, sinkers and jacks can then be used in other machines, where defects are noticeable.

CONTRIBUTOR No. 6221.

EDITOR COTTON:

I reply to the question of "CONTRIBUTOR No. 6214" as to how to correct uneven fabric caused by unevenly worn striking jacks in the jack head, and asking also for the best method of standardizing unevenly worn jacks in the full-fashioned machine.

This man seems to feel that his striking jacks are worn unevenly, whereas, an unevenly worn striking jack is rather hard for us to imagine, the only way I can conceive of for jacks to become unevenly worn is to have one of the following: (a) tight sinkers in the brass; (b) tight jacks in the cone walls; or (c) uneven verge plates with the catch bar pushed in too far so that one or two, or several, of the sinkers cannot go in as far as the striking jacks should push them, therefore wearing that particular jack.

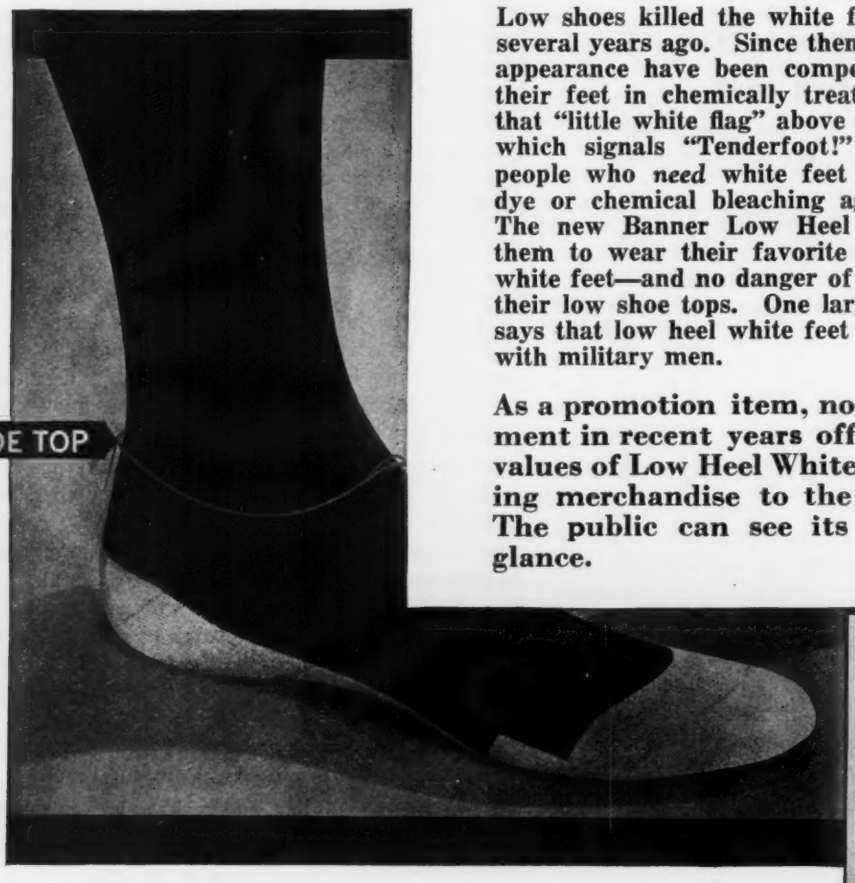
The matter of tight sinkers in the brass can be remedied by taking a divider, because it is a little longer than the sinker, and making an improvised saw by roughening the edge and working it in the slot until the sinker slides free.

Tight jacks in the cone walls are very often due to poor grease or trash getting in the cone walls and striking jacks when the sinkers are cleaned out. Neither condition should prevail.

Of course, if the damage is already done, the only thing to do is to take out the unevenly worn jacks and put in new jacks and use such of the old jacks as are good in other sections. However, I repeat that it is hard for me to conceive of unevenly worn jacks, except through poor attention or poor adjustment. We have machines which are over five years old and the jacks are worn perfectly even as are the sinkers and dividers. The only thing on our machines that tends to wear unevenly are the verge plates. Our jacks wear slightly, but evenly, from the motion of the slur cock on the jacks. This is adjusted by tightening up on the slur cocks slightly to take up the wear, and incidentally, I believe that this is about the only time that a slur cock should be changed, although I know of some mills who change the slur cock to adjust length.

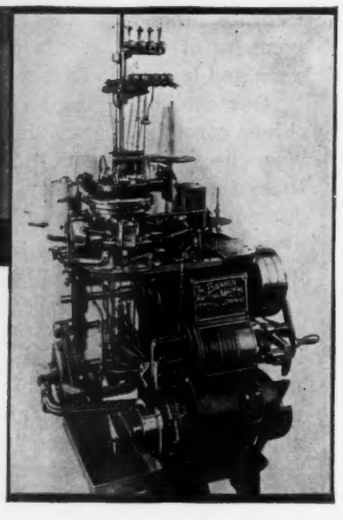
At last..... A HOSIERY IMPROVEMENT *which retail customers can* SEE!

BANNER LOW HEEL WHITE FOOTS



Low shoes killed the white foot stocking business several years ago. Since then, people who care for appearance have been compelled either to encase their feet in chemically treated yarns or to wear that "little white flag" above the back of the shoes which signals "Tenderfoot!" to the world. The people who *need* white feet stockings, free from dye or chemical bleaching agents, are numerous. The new Banner Low Heel White Foots enable them to wear their favorite stocking color—with white feet—and no danger of white showing above their low shoe tops. One large New York retailer says that low heel white feet socks are first choice with military men.

As a promotion item, no hosiery improvement in recent years offers the dramatic values of Low Heel White Foots in presenting merchandise to the retail customer. The public can see its advantages at a glance.



Low heel white feet half hose can only be knit on the Banner Improved Split Foot Machine. Because this machine knits the leg and instep from a single cone of yarn there are no yarn change defects, no uneven dyeing. The silk instep joins the sole with no trace of fringe. With extra reinforcements at

the points of extra wear the Banner Improved Split Foot Machine offers the most advanced half hose construction in the world.

WOOL FOOTS

People who like the feel of wool under foot with the appearance of silk on the leg can only be fitted with Banner Improved Split Foot hosiery.

HEMPHILL COMPANY

PAWTUCKET, R. I.

General Sales Office and Machine Exhibit, 93 Worth St., New York

Philadelphia	High Point, N. C.	Chattanooga
6628 No. Gratz St.	Commercial Bank Bldg.	James Bldg.

NEEDLES, SINKERS, JACKS, LINKS AND PATTERN SUPPLIES IMMEDIATELY AVAILABLE AT ALL BANNER BRANCH OFFICES

It would be my opinion that the trouble of tight and loose streaks, which he says come from unevenly worn striking jacks, might result from the verge plate having worn badly and being in need of re-grinding, or because of a bad re-grinding job.

CONTRIBUTOR NO. 6222.

Still Says They Wear Unevenly

EDITOR COTTON:

I have read the replies, of which you sent me advance copies, before publication, from "CONTRIBUTOR NO. 6221" and "CONTRIBUTOR NO. 6222" to my question in the May issue of COTTON asking for the best method of correcting uneven fabric, tight and loose streaks, in full-fashioned hose, caused by unevenly worn striking jacks in the jack head, and asking for methods of standardizing unevenly worn jacks in full-fashioned machines.

I should like to point out first that "CONTRIBUTOR NO. 6222" is wide of the mark when he says that jacks wear evenly. Nothing about the machine wears evenly. The sinkers and dividers do not wear evenly.

I will now tell you why I asked the question which was published in your May issue on page 93. In overhauling some old full-fashioned machines, we first reneedled the machines and gauged up all the sinkers discarding the defective and badly worn sinkers. On starting up the machines we found a good many tight and loose streaks running lengthwise of the fabric, and the fabric was not even and clear.

We discovered that this defect was caused by irregular or unevenly worn striking jacks. We made some investigation as to the best method of eliminating this trouble. We were told that the best method was to renew the jacks, which is rather expensive.

Another method was to place the forward point of the jack against a straight edge and file the back of the high jack down to the level of the worn jack to get a standard height. This method would work, but it was necessary to cut this jack to a standard of worn jacks.

We were able to secure a jack gauge made with an adjustable screw which we used to separate the various types into separate lots, making about three groups of all of the jacks from one machine, and eliminating those that were too badly worn.

We fill a jack head with a set of any standard group and get perfect results. This method will give a variable standard for individual heads, but the same thing would apply where the jacks were filed to a standard in each head.

When renewing a jack it is necessary to set the gauge to the standard of the jack in that particular head, and with this gauge select from one of the assorted standard lots of old jacks one which conforms to the required gauge. By this method it is possible to get excellent results from worn jacks and get maximum wear from the jacks.

So, having had this experience, I was curious to know whether any other mills had developed any method of standardizing unevenly worn jacks that was better than ours, and that is why I asked my question.

CONTRIBUTOR NO. 6214.

A Discussion of the Parts of Scott & Williams Knitting Machines.

Plates XV and XVI.

(This continues the series of short articles discussing the machine parts on Scott & Williams machines, by taking up in order the various plates in the manufacturer's catalog with which all men using this make of machine are familiar.

The first article, on page 126 of the October issue, covered Plate I, Plate II, and Plate III; and the second article, on page 86 of the November issue, covered Plate IV. The third article on page 97 of the December issue, took up the parts shown on Plate V. The fourth article on page 94 of the January issue, covered Plates VI, VII and VIII. The fifth article, on page 101 of the February issue, covered Plate IX. The sixth article, on page 73, of the March issue, covered Plates X, XI and XII. The seventh article, page 84, April issue, covered Plate XIII, and the eighth, page 89, May issue, described the parts on Plate XIV.

It is suggested that in reading these discussions, the reader turn to the plate in question in the catalog and refer to it while reading the comments found in these articles. Furthermore, it will be a good idea to clip these discussions and file them in the catalog along with the plates to which they refer.

The numbers in parentheses following the names of parts are the same numbers used by the manufacturers in referring to the parts in the catalog.—The Editor.)

Plate XV—S. & W.

EDITOR COTTON:

None of the parts shown on Plate XV of the Scott & Williams catalog requires a great deal of attention, due to their simple design and sturdy construction. The latch ring bracket (6113) and upper guide plate (7041) are used on all models, the remaining parts are used chiefly on B-5 and B-3 machines. The latch ring bracket is held to the bed plate by screws (15512), ample space for adjustment on plain type machines is provided by enlarged screw holes in the base of the bracket. Dowel pins in addition to screws are used on Models K, H H and R I latch ring brackets in order to hold the brackets more rigid to the bed plate, simplify removal and replacement in case of repairs, and to assure keeping the bracket in the same position as originally placed at the factory. More will be said about latch ring brackets in a later discussion.

Occasionally upper guide plate walls (7042) will be broken, especially the one next to the double sole thrust bar. The yarn changing fingers cannot be controlled properly when these walls are broken; they should be renewed immediately when breakage occurs. If the guide plate wall next to the double sole thrust bar breaks frequently it will be best to check up on the condition of the leading double sole cam, making sure that it is properly shaped and not badly nicked, as either of these two things will cause this particular wall to break. The result will be an uneven double sole line on either side, which impairs the appearance of the hose and in many cases causes otherwise perfect goods to be classed as seconds. The remaining parts shown on the plate are simple to adjust, require very little attention, and seldom wear out under normal conditions.

Plate XVI—Universal Up and Down Pick Posts.

On Plate XVI are shown the various parts that are needed to control the needles while making the heel and toe on a Scott & Williams machine. Another

set of parts identical in some instances and very much alike in others is shown on Plate XX. The main difference between the parts on the respective plates is that Plate XVI shows Universal parts and Plate XX shows B-3 parts on machines producing infants' and children's hosiery. Unless specifically stated, all suggestions as to care or adjustment will apply to parts shown on both plates.

The up pick connecting rod (7095) is the old type which was used on all models. It serves as a connecting link between the right and left up pick studs (6570—6571), causing one pick to be lowered by the other pick raising a needle. Constant motion back and forth would eventually elongate the slot in either end of the connecting rod so that it would fail to control the up picks properly, and when this occurred, it was necessary to renew the rod as means of adjustment were lacking. The manufacturers corrected this minor ailment in short order by developing the two-piece adjustable rod shown on Plate XX, known as upper and lower adjustable links (9150—9149), which are now being used on all types of machines.

Up Picks.

Broken needle butts, damaged cylinder walls, seconds and waste are a few of the most common troubles caused by poorly fitted or improperly adjusted up picks (6530—6531). The only difference between Universal up picks and B-3 up picks is that the latter are longer from the hole to the front end, due to the smaller diameter of the B-3 machines, and varying in length according to the diameter.

Up picks must work freely in the studs (6571—6570) and they should be lubricated at least three times a week. In fitting an up pick, two things are essential in order to make it give satisfactory results. First, it should be long enough. In order to obtain proper length, grind the pick so that the end will just clear the cylinder wall as it raises the needle upward, the nearer the end is to the cylinder wall without rubbing, the better the pick will operate.

On fine gauge machines the end of the pick should be within 1/64-inch from the cylinder; on coarse gauge not over 1/32-inch from the cylinder. It must be remembered that the farther toward the end of the needle butt the pick takes hold the greater the possibility of the needle binding when the pick lifts it. Mis-picks, bent needle butts, injured cylinder walls and the like can all be caused by up picks being too short.

Up Pick Adjustments.

The second factor to be considered in fitting an up pick is the width of the lip on which the needle butt rests while being raised. If the lip is too wide it will usually raise two needles, one part way and the other all the way up, causing broken needle butts or doing other serious damage. If the lip on the pick is too narrow the needle butt will slip off the pick before it is fully up, causing broken needles, damaged cylinder walls, and the like. As a general rule it is safe to have the lip of the up pick as wide as the needle butt is thick; never wider and preferably slightly narrower, especially on fine gauge machines.

Careful attention must be paid to up pick adjustments in order to get satisfactory results. Three factors are important when making up pick adjustments. First, the up pick must lie deep enough in the recess in the top of the stitch cam to allow the needle butt to get just above the lip of the up pick as it comes in contact with it. Secondly, the up pick should lift the needle high enough so that the butt will clear the point of the upper center cam (7013) by 1/16-inch when the up pick is completely up on the adjusting cam (7493—7494). The adjusting cams (7493—7494) should be set horizontally so that the up pick will remain on the adjusting cams after the needle has been released. Wear on the up pick cams (7493—7494) decreases the lifting distance of the pick; it is therefore necessary to vertically adjust these cams with the adjusting screw (6809) according to the amount worn off. Up pick springs (6636) should be in first class condition by all means; a great deal depends on their perfect action. When they do give trouble it is usually caused by breakage or becoming weak through constant use. Careful attention must be given to right up pick adjustments on machines equipped with fashion marks attachment. This attachment requires the use of a special right hand stitch cam (7015) which has considerably less recess for the pick to lie in than the plain cam and therefore requires a closer adjustment. It is also necessary when using this attachment to grind the groove in the up pick cam deeper in proportion to the lesser recess in the top of the stitch cam.

In order to assure all needles forming contact with the up pick at the same level it is necessary to bend the guard cam (7949) slightly downward on Model K machines equipped with the fashion marks attachment.

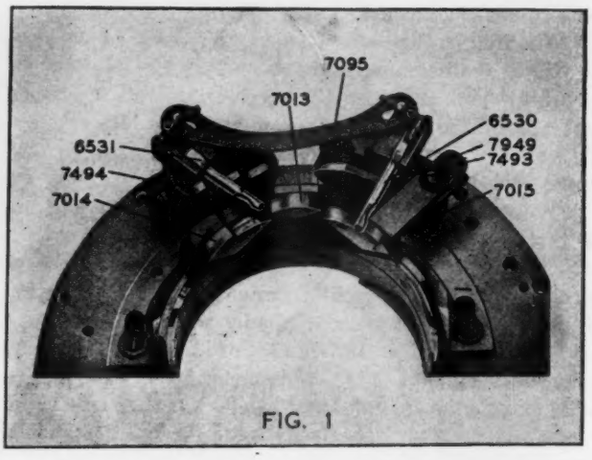


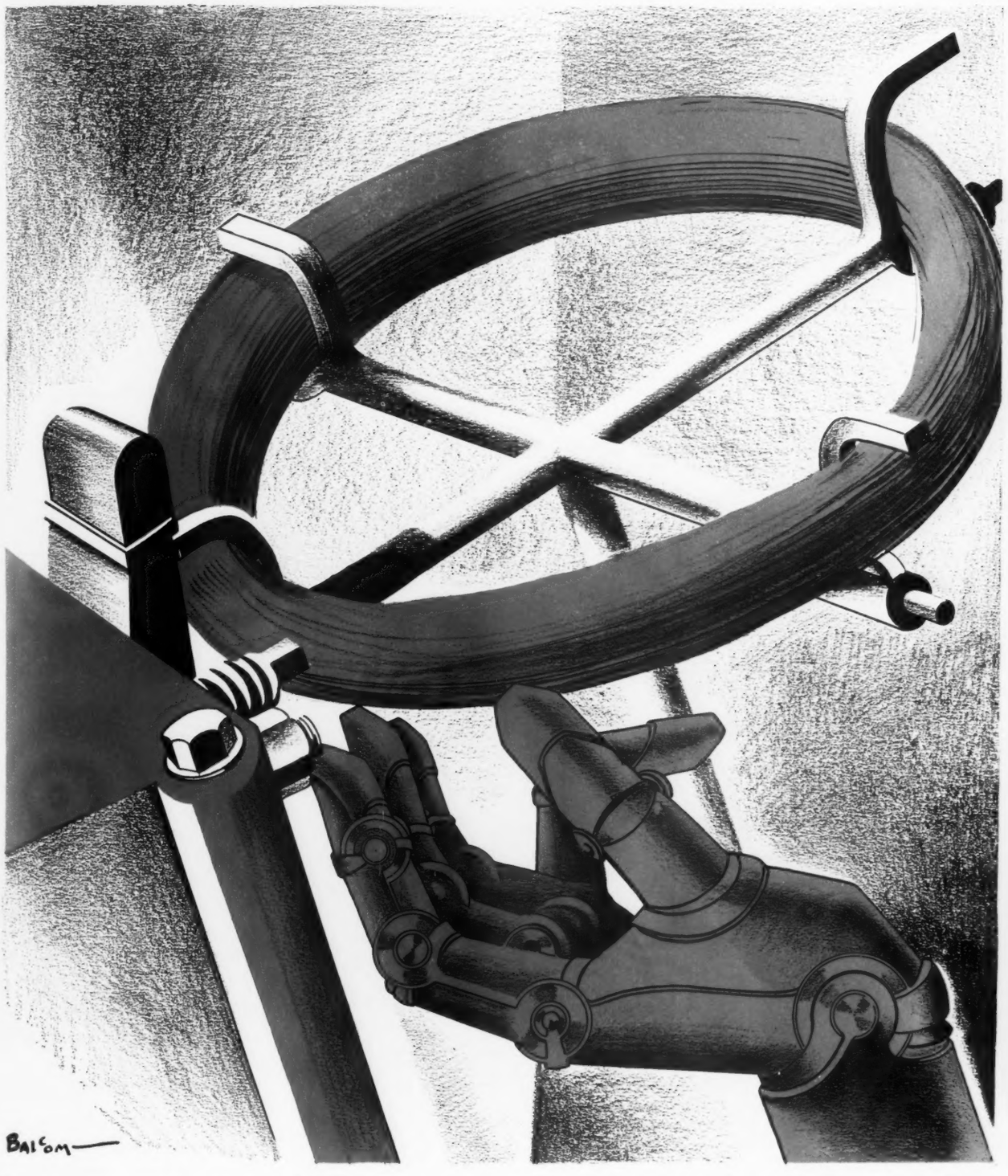
FIG. 1

Fig. 1 shows the various parts referred to as they appear assembled and mounted on the cam ring.

The Down Pick Post.

On the down pick post are mounted the down pick (6525) and the few other parts necessary to control it. The needle leveling cam (6521) requires very little attention other than that it be set as close to the cylinder as possible without binding, and in a perfectly horizontal position.

At times broken needles, up pick trouble or other machine failure will cause the needles to jam against the needle leveling cam, forcing it into a non-horizon-

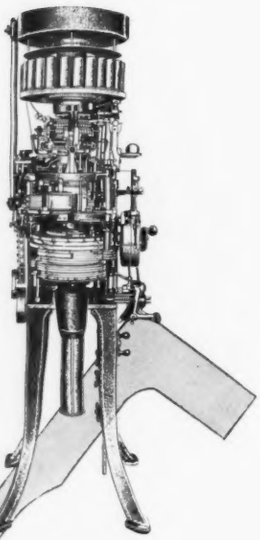


Torrington needles look identical, act identical, *are* identical . . . for they are made in machines. The eyes and hands which control their size and shape and temper are *mechanical;* they go on, hour after hour . . . smoothly, tirelessly . . . "checking" millions of *Torringtons* to prevent any minute deviation.

TORRINGTON *SPRING BEARD* NEEDLES

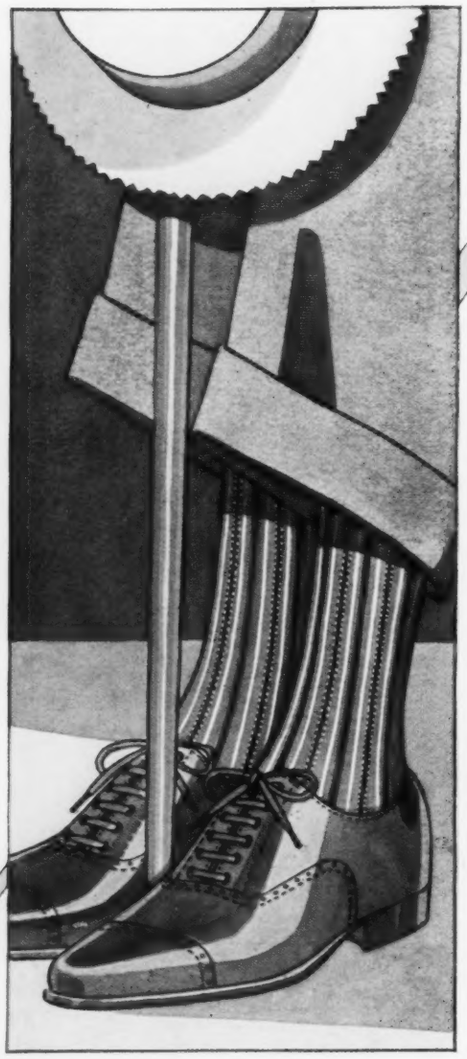
THE MACHINE . . .

It's "news"... this 80 wrap machine by Standard-Trump Bros. Machine Co. And a really complete story of its success would include this fact: the Standard 80 wrap is equipped with *Torrington needles.*



THE PRODUCT . .

Half-hose that puts real enthusiasm into selling. Holeproof makes it... on the Standard 80 wrap machine . . . here again, in the finished product, we see the valuable results of specifying *Torringtons.*



AND TORRINGTON NEEDLES . . .

Where there's pride in the machine and in the work it turns out, there you will be very likely to see these uniform, dependable needles. The makers of Torringtons refer you, with confidence, to the "company they keep".

The Torrington Company

ESTABLISHED 1866

Torrington, Conn., U.S.A.

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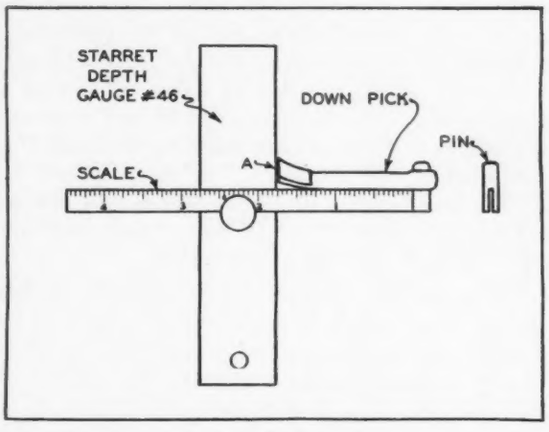
TORRINGTON *Latch* NEEDLES

tal position. Various forms of trouble will develop when this occurs, such as down pick failure, holes in the instep and holes in the heel and toe gores. The down pick failure is of course caused by the needles not coming in contact with it at the proper level. The holes in the instep and gores are caused by needles being lowered from the regular level by the improperly set leveling cam and then being raised again by the upper center cam. This needle disturbance causes the fabric to creep up, above the nose of the sinkers, while the sinkers are withdrawn by the center sinker cam and various kinds of holes will be cut by the fabric being disturbed in this manner. The down pick stud (6576) should work freely in the post with as little side play as possible.

The Down Pick.

Three factors are important in fitting a new down pick. First, it should have a free horizontal movement in the stud (6576) and on the pin (6577). Second, it should be long enough so that the working end will clear the cylinder walls by 1/32-inch as it begins to lower the needles. Third, the lip on either side should be wide enough to cover two needles plus the thickness of the wall between them.



Down Pick Gauge

Down picks are universal parts and must be ground to fit the various gauges and diameters. After the pick has been ground for length the top should be rounded off and polished to prevent chattering when it comes up against the butts of the needles. Grinding leaves very sharp edges on the end of the pick. These should be slightly rounded and made smooth with a square cutting stone.

A great deal of time and guess work can be eliminated by making a down pick gauge out of a 4-inch No. 46 Starrett depth gauge. With the use of this tool the proper length and the correct shape of the working end of the pick can easily be determined. (See sketch). In making this gauge, make a pin ⅜-inch long the same size as the hole in the down pick. Slot one end as shown and "sweat" the pin to the scale perfectly square with it and flush with the end of the scale. The following suggestions will be helpful in using this gauge. Notice whether the old pick is long enough before removing it. Place the old pick on the pin so it lies on its back, then set the scale to the desired length and tighten the thumb screw. Grind the new pick on the working end so that it lines up vertically with the body of the depth gauge at *A*. This gives the end the correct shape. The lip on either side should clear the body of the gauge when moving the pick back and forth. With a little practice the fixer can set the scale to the desired length (by noting the fractions of an inch) in cases where the pick is broken, making it impossible to get measurements from the old pick. The use of this gauge will prevent spoiling new picks, eliminate guess work in getting the right shape and length, and save a lot of removing and replacing time for the fixer. He really can do a better job in half the time.

The down pick cams (7491—7492) should be tight to the post and the surface where the pick rides should be well polished. An inverted V should be formed by the down pick cams so that the needles will begin to move downward immediately when the butts come in contact with the down pick.

The Switch Cam.

The switch cam (6540) gives very little trouble on a plain machine where only long and short butt needles are used. The principal requirements are that the bracket (6141) be set so that the short butt needles will just pass in front of the switch cam when it is down while the cylinder is reciprocating. The point of the switch cam should be low enough to get *under* the long butt needles when the cam is *down*, and high enough to get above the needles as they pass under the needle leveling cam when the switch cam is *up*. The low adjustment is made with an eccentric button fastened to the cam ring, the point of the switch cam resting on it while down. The high adjustment is made with the switch cam lever (6142) which is operated by the rod (6506). More exact switch cam adjustments must be made on machines using medium butt needles with various attachments.

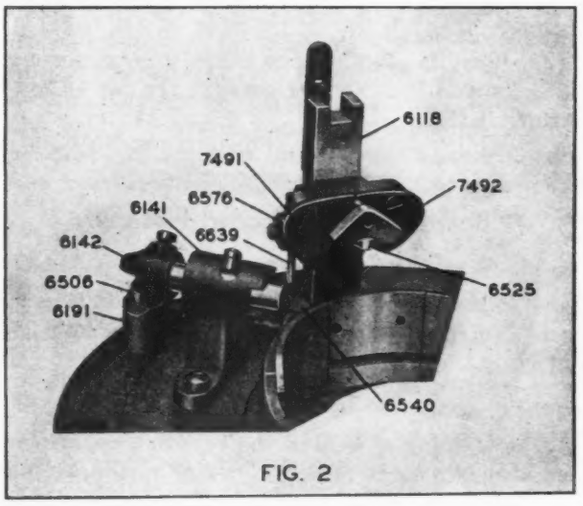


FIG. 2

Improper adjustment of the down pick finger (6191) will cause the switch cam to vibrate while down and break long butt needles while they pass over the cam. To prevent this trouble the down pick finger should be set low enough on the rod (6506) so the weight of the rod will be carried by the finger rest-

ing on the bed plate, when the rod is down. If the finger (6191) is set too high the weight of the rod (6506), when down, will be carried by the dropper controlling lever (6041—Plate IX) resting against the pattern drum, causing the lever to bounce when it drops off of a cam onto the drum proper.

Fig. 2 shows the down pick finger (6191) resting on the bed plate as it should when properly set. The switch cam, switch cam bracket, down pick post and all parts attached to it are also shown. A few drops of oil on the various moving parts shown on Fig. 2 should be applied at least twice a week to keep them in good working order.

CONTRIBUTOR NO. 6038.

Question on Fixing Methods on Seamless Machines

Also asks for needle and sinker breakage figures on men's fancies . . . . . .

EDITOR COTTON:

We should like to see in your "KNITTING KINKS" department some discussion as to practice and experience on the following questions. We are running men's fancies, transfer work, on 3¾-inch S. & W. Model B, also 3¾-inch Banner machines.

1. Do you find it a better method to give a fixer a certain number of machines to attend to the oiling, taking out bad needles and sinkers, or do you find it a better method to give him more machines with a helper?

2. In changing patterns, do you find it a better method to have a special mechanic to do this work or to have the fixers themselves do it?

3. In having this work done by different mechanics, do you have it done by the best men or the less efficient ones?

4. What do you find to be a good average for needle and sinker breakage per machine per day on work of this kind?

CONTRIBUTOR NO. 6239.

Boarding Full-Fashioned Hosiery

(Continued from page 77.)

have split the sizes into different lots or finished them at different times, so in that case the lot might not be uniform throughout.

The Training of Help.

The training of help in the boarding department has always been a source of worry to the average superintendent. We have adopted a system of apprenticeship which has made the job a real pleasure due to the fact that practically every one in the department has worked up from an apprentice job. Whenever we start up a new job we usually take the helper from a former machine and make him a boarder. The new helper will probably be a sorter boy who has had ample practice before going on a machine. We encourage our sorter and batch boys to help on the machines as much as possible, in fact during periods when there is not enough sorting to be done we insist upon their taking part in the operation of the machines without remuneration. After this part which they have taken on the machines which amounts to several weeks' training, they are in a position to go on the machines as helpers at any time we need them. The same applies to the helpers. We insist upon their changing about with the boarders so that they become very thoroughly familiar with the operation of the machine and know in a very short space of time how to act in the boarder's place. In this way we have a potential boarder in every helper and a potential helper in every sorter, so our department could be expanded to at least one-third more capacity if we desired, within one day's time.

We also insist upon our men who are on wooden boards, samples and re-boards, to learn how to operate the machines so that any time any of our machines are down by reason of absence we immediately place a wooden boarder on the job so that the machine does not remain idle for any length of time. We have always taken on young boys for apprentice work starting them at the ages of sixteen or seventeen so that we have an extremely young organization at the present writing.

We employ two shifts and have an assistant foreman on night work to take care of the operation of the department the same as the day superintendent. We have never allowed any of our operators on the automatic machines to make any changes or repairs. All changes and repairs are made by the head of the department or the assistant. In this way we have kept the maintenance of our machines in a one hundred per cent condition and have spent very little money on their repairs or operation.

For a number of years the boarding department has been looked down upon as the last department for for efficiency in a plant, and it has only been in the last few years that the boarding department has come into its own. It is without doubt one of the places where the most can be made of the merchandise and where conditions should be a hundred per cent perfect. All of our operators are dressed in white; white pants, white shirts, and white shoes, and have to keep themselves in a certain state of neatness continually. The work is handled so as not to be soiled and also the work is examined for flaws and defects as it is passing through and notice sent to the engineering department for correction. Any number of dozens are saved in the boarding department which otherwise would have gone into seconds, if they were not checked properly and finished as they should have been.

The comfort of the operators has also been considered in our boarding department. We have a number of fans as well as an air duct coming in from the outside to keep the place as cool as possible. This works in conjunction with two very large exhaust fans which draw out the warm air as the cold comes in. At the same time we have put in shower baths for the wash-rooms so that an operator after a hard days' work may clean himself off thoroughly and go home refreshed.

THE KNIT GOODS MARKETS . .

THE hosiery buyer for a Philadelphia department store concluded it would be a patriotic duty to cease offering hosiery at distress prices, as an expression of approval of the efforts of the Washington administration to increase prices of commodities. This buyer stated also that it was a duty that retailers owed to manufacturers to pay them enough to enable mills to increase wages. This buyer therefore called a conference of the buyers of the four other Philadelphia department stores, and he states they all attended a luncheon, as a part of the conference. He says it was the sense of the conference that no more silk full-fashioned hosiery be offered for 39 cents; that there could be little profit for either mill or retailer in such stockings sold for that price, and that there was no room for a price less than 49 cents.

The buyer who called the conference, for May 16, was very specific in his statements concerning the discussion and outcome. The buyers for two of the four other department stores professed to have no knowledge of the conference, said they did not know that one was held and that anybody who said otherwise "did not know what he was talking about."

The denial by two buyers (two could not be located when their confirmation or denial was sought) spoiled one of the best news items developing in the hosiery trade in some time, and although there seems no doubt that a conference such as described by the unsupported buyer really was held, and that the action he reports really was taken, names cannot, in the circumstances, be given publicity. It is not difficult to conceive that after it was all over, all except the originator of the idea of retailers advancing prices for hosiery manufacturers, felt it might not be good policy to commit themselves to any such proposal, lest their customers resent the action by which they, the shoppers, would find it necessary to increase their hosiery budget.

Promise of Elimination of Rings in Silk Stockings Believed to be Start of a New Era

Announcement a few weeks ago that a process for knitting silk full-fashioned hosiery free from "rings" due to unevenness of silk, has been perfected, would have caused a greater sensation but for the fact it was treated as "too good to be true". Before the prospective advent of "no ring" hosiery had been widely heralded it was on sale in the John Wanamaker New York and Philadelphia stores and in some equally well known retail establishments in New York. It is understood the first shipment to Wanamaker's in Philadelphia was from the Greensboro Full Fashioned Hosiery Mill, Inc., Greensboro, N. C., of which F. Osborne Pfingst is president. About the same time shipments were going forward to New York stores from the mill of the La Salle Hosiery Co., Philadelphia.

As rings—sometimes referred to as "zebra stripes"— in hosiery have for many years been a source of much annoyance to manufacturers, dealers and the consuming public, and the cause for a relatively large part of the production of some mills being sold as "irregulars," the trade, although perhaps skeptical, soon was ready to acclaim as a benefactor the originator of a knitting process by which "rings" are to be a blemish of the past.

It appears experimentation has been in progress for some time and application for a patent had been made well in advance of the two manufacturers mentioned putting their no-ring product in a few retail stores. And at last accounts a device said to be sponsored by Paul Krinkle was approaching a practical stage in a specially equipped demonstration shop in Philadelphia in which Isaac C. Eberly, president of the Oakbrook Knitting Mills, Inc., Reading, Pa., and Richard Schletter, formerly of Schletter & Zander, Philadelphia manufacturers of full-fashioned hosiery who voluntarily liquidated several years ago, are believed to have a capital interest. The Textile Machine Works was engaged to perfect a device for knitting full-fashioned stockings from three ends of silk, and were said to have made much progress in that direction by the latter part of May, but, in the circumstances, could not with propriety be quoted.

It appears from statements of persons familiar with the process as far as it has been developed that it involves the application of a machine attachment to knit from three ends of silk, drawing alternately from the several strands for each course of fabric. It is explained, for example, that knitting four-thread silk of tram of 13-15 denier, the average diameter barring unevenness, may be 14 denier, or 56 denier for the strand actually being taken by the needles. By a slight variation in the specifications, the four-thread fiber might be of either more or less than 56 deniers. The extent of the variation in diameter of a single thread is reflected in greater or less degree in the fabric, depending on how much of it is knitted from material heavier or lighter than the 56 denier. With the use of three threads in alternating courses, it is explained, there may be a variation in diameter but it would not be perceptible, a uniform tension being maintained. This attempted crude description of the process necessarily is subject to revisions by the technically informed, but the writer believes it is basically correct.)

The La Salle Hosiery Co. originally was using the ringless special stitch formation attachment on a single unit Schubert & Salzer machine, but now is employing it on the legger-footer type equipment, it was stated by an executive of the company, the results being identical. It seems probable that by the time royalty rights may be available, the perfected device for which application for a patent is pending, may differ somewhat from that which preceded

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it. There is seen a disposition to proceed cautiously toward introducing the innovation commercially. That it will prove the outstanding sensational development in a decade in the manufacture of women's silk full-fashioned stockings seems to be believed generally, and there is heard the boast that it may be no longer necessary to pay a premium for silk represented as ring proof.

Unlike the non-run type of stocking and many innovations, the no-ring stocking presents no departure from ideals which attach to staple construction, and will be recognized as a distinct advance in that a major objection to silk full-fashioned is eliminated —this being predicated on the assumption that the achievement thus far to that end is but the commencement of universal adaptation of the process to the better varieties of hosiery.

If the ringless shall establish a line of demarcation between stockings made for a price dictated by dealers, and those sold on their merit for freedom from defects and featured by other qualities, it is pointed out, the full-fashioned industry will have taken a long step toward its purification. That the 39-cent hosiery still will be offered in a 79-cent market is not doubted, but manufacturers will have their choice of price fields in which to operate—one, in which price is measured by quality, the other, where stores want first grade for the price of irregulars and sell irregulars at the price of regulars.

It has been remarked in the trade that "the full-fashioned hosiery industry will this year enter a new era," coincidentally with the boasts of a new deal. It may be that the first card in the new deal in the game of making, buying and selling hosiery will have been played in the banishment of rings from otherwise perfect, so far as it is possible to attain perfection in fabric. Manufacturers looking to a weeding out of an element that has put the full-fashioned industry to shame may be nearer that accomplishment than a short time ago seemed a nearby possibility. For the present, progress in that direction will depend largely on the extent to which woman, taken collectively, expresses her hosiery preference in her purchases. She still has a weakness for chiffons, and buys them at increased cost over medium weight, reckoned from the standpoint of service. It is indicated that in the better stores where prices range from a quarter of a dollar less to a quarter more than one dollar a pair, four-thread silk and lighter have the larger per unit sale. Elsewhere there seems a drift to a stouter fabric.

Of two manufacturers in Reading who were encountered quite recently, one reported seven-thread leading in sales, the other running about even as to seven-thread 42-gauge, at $4.50 a dozen, and three-thread 48-gauge at $6 per dozen. The latter, insinuating that sales of so-called 48-gauge stockings are, in numbers of instances, described by buyers as 51-gauge, maintains that sales of so-called 51 exceed the output of all machines of that gauge, if they were in operation steadily for 144 hours a week. A nationally known manufacturer subscribing to this view picks five-thread 51-gauge, which, by the way, he has in his line, as an ideally fine product combining service construction. But even the retailers having a clientele that is not especially resistant to price seem not disposed to exploit it as a distinctively upper grade stocking. How to put prices on a level commensurate with the rising cost of manufacture is, and probably for some time will be, a problem, so long, at any rate, as there is available second hand equipment at relatively little cost.

Southern Manufacturer Flooded with Orders Reported Buying Hosiery in Gray from Pa. Mills

A Philadelphia manufacturer who states he is not liquidating; that he is buying full-fashioned machinery for replacement, in the past month or two succeeded in disposing of practically his entire plant, represented in a directory of the knit goods trade as comprising around 40 machines. He shipped one set to an up-state Pennsylvania mill. Some of the machines were taken for a mill to be established in Glassboro, N. J., in a building from which full-fashioned equipment was shipped to the South somewhat recently. Some was bought for a plant to be set up in North Wales, Pa., it is stated, and the remainder is in scattered old mills, soon to be in production of low price hosiery.

The plant of the Lincoln Hosiery Corporation, in Philadelphia, which was closed down a few weeks ago, has been a consistent distributor of 39-gauge hosiery for the very low price brackets, and it is stated by the management that it is to remain idle until either raw silk declines in cost or hosiery advances in price. It is understood in the trade that the Ely & Walker Dry Goods Co. is a large stockholder in the Lincoln Corporation.

A southern manufacturer operating in the neighborhood of 50 or more full-fashioned machines was reported early in May taking the output of two or three small mills in the Reading, Pa., section, the stockings being shipped to him in the gray. The accuracy of this statement was vouched for by a market authority well known wherever full-fashioned hosiery is manufactured on a large scale. The point was made that in the then condition of the market, many of the small mills were at a disadvantage in offering their production to dealers; that they had no assurance of steadiness of plant operation and were at the mercy of chiseling buyers, whereas by selling in the gray to a responsible manufacturer, and having no dyeing plant of their own, they assumed minimum risk and were at least earning plant overhead. After all, it was remarked, "it is more a matter of merchandising ability than knowledge of mechanical operation."

A long-day mill in Philadelphia is using gray full-fashioned hosiery from several small mills which, combined, have a much greater capacity than that which takes their product and finishes it. A 30-hour week would not much help the small producers depending upon others to take their output, while the larger concerns, it has frequently been pointed out by students of the proposal for putting more persons in jobs, simply might operate plants with three six-hour shifts. This might militate against the South, it was pointed out by an execut-

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tive of the Berkshire Knitting Mills, in that the increased number of additional operatives required probably would not be so readily available. A retort from the South is that by the time it becomes desirable that mills employ three or four shifts, southern manufacturers will have trained enough help to make up the deficit which might exist were a 30-hour week put in effect now.

The Reading report of a southern manufacturer buying gray full-fashioned hosiery there and selling it through his own organization gibes with the following from a New York trade report:

> "Booking of large amounts of jobber business on cotton, wool, silk and full-fashioned hosiery, as reported by the New York offices of a number of large southern producers, contrasts distinctly with reports from northern mills, which indicate only a slight increase in orders during the last three-week period when price increases have been in the air."

The Hancock Knitting Mills announces through a manager for creditors that, contrary to report, the company has no intention of liquidating; that the plant is idle because hosiery cannot be sold profitably at current prices, but that the machinery is not for sale. Originally, when the mill was closed down some weeks ago, it was officially announced that some of the machinery would be disposed of. There are buyers aplenty for full-fashioned equipment, willing to take a few units or an entire small plant. But usually buyers want to acquire mills on easy terms, and a deal for a plant of 30 machines was virtually closed a few weeks ago, when the owners decided they would rather hold on or accept a lower cash price, waking up to the undesirability of extending credit and having someone operate the machines at the sellers' risk. There is not a great deal of ready money for investment in either used or new machines, but there is evidence that more new equipment is planned for installation this year than probably was installed in 1931 and 1932 combined. This seems a part of the proposed plan for entering upon a new era and, by the employment of modern and more economical equipment, take a defiant attitude toward competitive low end lines.

Direct-to-Retailer Manufacturers May Be Last to Increase Prices

Manufactures selling under their established trade-marks are likely to experience more difficulty in advancing their prices than will those having no trade-marks and selling to jobbers and large retailers. This, in any event, is an opinion advanced by the managements of several direct-to-retailer mills whose brands are familiar names among dealers. As explained by each, their lines are established in their trade for certain price brackets. Dealers declare they cannot pay the manufacturers advances commensurate with the higher cost of silk, unless they increase prices to consumers, and to move the several numbers to higher brackets, they maintain, might cause a loss of some sales. The manufacturers dare not cheapen the lines, for to do so would impair the value of their trademarks, while to maintain prices at their present levels would be elimination of profits. This group of mills no doubt will be able to adjust their prices to increasing cost after the lines of large manufacturers, sold unidentified to quantity buyers, have been moved up as the "new deal" gets under way.

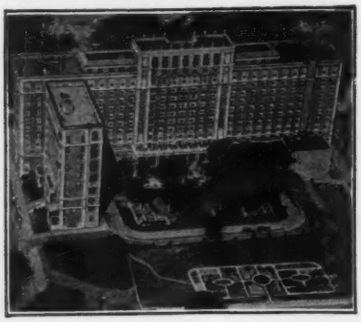
Owners of comparably small plants have said quite recently that they will increase their prices after large mills as a class have taken a step toward more nearly value as a selling basis. The Apex Hosiery Co. leads the Pennsylvania procession in matter of advances, with an addition of 25 cents to the company's $4 numbers. "The increase ought to have been 50 or 75 cents," says the sales department of a mill larger than that of the Apex company. The mill at the time was still quoting the March-April prices, the sales manager stated, while expressing an opinion that "manufacturers refusing to move their prices to a profitable basis are crazy."

Some advanced as an excuse for making no change their belief that if they made upward revisions they would sell less hosiery. This feeling is gradually disappearing, with announcements of increases by such mills as the Magnet, Cannon, May and others in that class. Buyers for some leading retail stores stated as late as the third week in May that the only higher quotations were on cheap lines, in the low end division. At least two Philadelphia manufacturers still were quoting $3.75 a dozen for 39-gauge goods. One improvement noted was in fewer promotion sales of branded hosiery at 50 cents a pair and thereabout for "first quality"—not otherwise described to the public.

An Improving Situation for Retailers.

As advancing prices and a fair approach to stability would strengthen the position of retailers—this applying of course to all knit goods—it would appear that manufacturers might help matters for themselves and all concerned by quoting moderately up. As is pointed out, retailers' inventories become more valuable as prices increase and their buyers therefore are less reluctant to place orders for reasonable quantities, instead of continuing to buy for day to day needs. Having stocks, dealers will get back of them and start the goods moving. The old way won't do under the new deal, say interests trying to inject more life into retailing to match the vigorous trading in textile raw materials. As to silk stockings, either manufacturers' prices will be increased or their cost will be reduced, largely by the employment of equipment of highest practical speed or applicable to the incorporation of acceptable special features.

While the department stores in the larger cities made it appear their business in hosiery tapered considerably following their Easter sales, in some of the interior cities retailers reported increasing volume, such reports being confirmed by jobbers and some of the direct-to-retailer mills. The Northmont Hosiery Corporation, in Reading, for example, has been operating on a day and night schedule for some weeks, selling only to retailers. Early in May it became necessary for the company to allot shipments. A few retailers, in outlying sections, not receiving the desired deliveries, motored to the mill and drove off with lots



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of 100 dozens and more, their appeals for supplies meeting with immediate response. Numbers of mills in the smaller to moderate class were under severe pressure during the greater part of May, and distributed substantial business among manufacturers selling in the gray.

There was particularly strong demand for 45-gauge all-over silk hosiery, some of the better shops using the goods for promotion sales. One Philadelphia store had its final sale at 50 cents a pair in May and states that one-day sales broke all records. Some of the stockings were clocked, most of them were plain. Price proved more potent than clocking, it was found. Standard construction of 45-gauge is reported scarce, at the prices ruling in March.

Philadelphia has not been taking kindly to offerings of mesh hosiery, while in some cities, certain types of mesh are fetching $1.65 to $1.95 a pair. Leading stores in Philadelphia find dollar numbers leading in sales, and even these are in no great quest, it is stated. Sales of the better grades of mesh hosiery have suffered from offerings of cut-and-sewn numbers, sold in instances for 45 cents a pair, other stores showing a better number at 50 cents. One or two popular price stores still were able recently to sell three pairs of full-fashioned silk for one dollar. No one, it appears, has been stocking silk hosiery for a profit when the inescapable loftier prices become effective. From the efforts put forth for interesting women in meshes, it might appear that when they faded from the picture after a fairly brisk season last year somewhat heavy stocks remained to be moved. It was thought in some quarters that meshes would be given a lift by a promised popularity for the "Kantrun" and "Non-run" stockings from two leading Pennsylvania mills. But the non-run stockings never were able to get a toe-hold on the path to popularity. Some interests believe they will have a better sale in the Fall than at present.

The Vogue Silk Hosiery Co. in May introduced a new number of women's full-fashioned hosiery, in a bid for business from retailers who have been clamoring for something new. The stocking in question is described as a tweed chiffon, knitted 80 per cent of silk and 20 per cent of a combination yarn. While the stocking retains the appearance of standard pure thread silk, it is a trifle suggestive of being intended for sportswear and appealing to an element that dotes on individuality in hosiery.

Although the result of curtailing production of women's silk full-fashioned hosiery during the post year-end holiday slack demand is seen in the reports from 342 identical mills to the Department of Commerce for March 1933 and 1932, it would appear that subsequent curtailed consumer buying has had a reflex in continued accumulations, as indicated by failure of manufacturers to improve on their prices until May. Shipments of full-fashioned in March were less than 50,000 dozens over March of last year, while output was around only 30,000 more dozens. But, analysis of the reports shows, it was in March that jobbers and retailers increased their orders, partly in preparation for the Easter trade, of course. At the beginning of April unfilled orders were reported as amounting to 206,880 dozens over the corresponding date of last year, when Easter Sunday fell on March 27.

The more satisfactory showing made for women's silk full-fashioned hosiery is in a decline in stocks of 433,562 dozens, to 2,598,890 dozens. Women's seamless silk seems to have sustained quite a recession, as indicated in a falling off of 26 per cent in production, drops in new orders and shipments, only a slight gain in unfilled orders by April 1, and not substantially diminished stocks in mills. If the figures as a whole are representative of the business in seamless in March, they are to be regarded as not encouraging for that division, so far as relates to women's silk hosiery.

What's Wrong with Half-Hose Market?

An up-state Pennsylvania manufacturer of recognized good types of men's half-hose wants to know what it was early in May that possessed buyers of large quantities to offer as little as 90 cents a dozen for Celanese in combination, or approximately 30 cents a dozen less than a common quotation, which in instances was readily obtainable. The low prices complained of in May could have been due to an increase of output in March, the increase over 1932 amounting to 278,252 dozens, or approximately 25 per cent, while shipments increased less than 70,000 dozens. There were, however, unfilled orders on April 1 for 1,432,484 dozens, compared with 745,920 dozens on the similar date of 1932. But there was shown such a healthy decline in mill stocks by April 1 that there would seem to have been unaccounted-for accumulations as a factor in the disturbed condition of the half-hose market.

One of the more important manufacturers of infants' socks reported early in May that deliveries were in arrears by 30 to 60 days, depending on the particular type. Unfilled orders on April 1 amounted to 383,369 dozens, an increase from 144,301 dozens as compared with April 1, 1932, as reported by manufacturers. Rayon-cotton combination shows a falling off in infants' socks and women's seamless stockings, and rayon shows a severe decline in women's seamless and full-fashioned. It is expected that when the statistics for April have been tabulated, the hosiery industry will present a better showing than that for March, for mills began doing better soon after the end of the bank holiday. It was indicated, in the absence of statistics, that there was a better flow of orders in May than in April, making it appear that the upward swing in hosiery really had made a start.

The increase in orders taken in May conforms to the showing in the recent graph prepared by the National Association of Hosiery Manufacturers. The same chart shows a sharp decline in orders and shipments, 1927-32, in July, and it may be noteworthy in this connection that some important buyers state they have covered for requirements to the middle of June, intimating they believe that if they find a need for placing reorders during the succeeding two months they will have little difficulty in locating the goods—the buyers apparently trusting to mills to have accumulations.

Manufacturing and Retailing Combinations Fail.

There may be times when chain retail store organizations can operate profitably as manufacturers. Two specific instances can be cited as showing that in the long run mixing manufacturing and retailing may be

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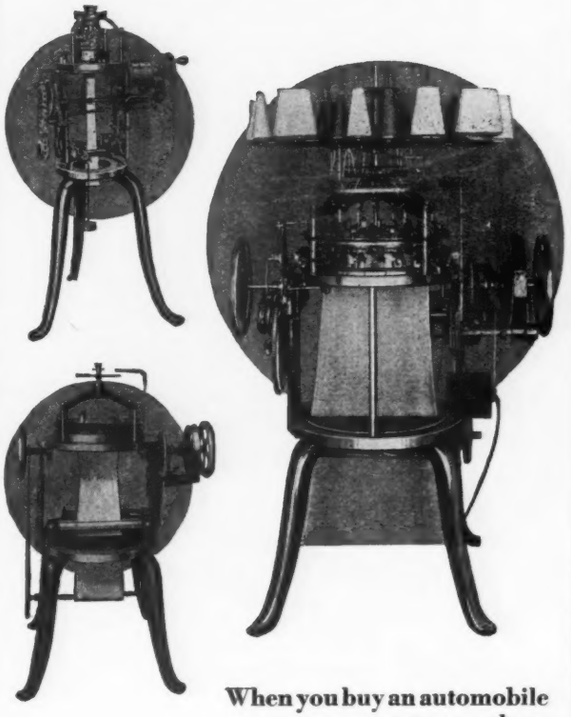

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so costly that it loses the glamor of all going well during short periods.

For some years a chain of a dozen or more exclusively hosiery shops in and near Philadelphia was able to earn fair profits while paying post-war peak city rents. The owners of the chain had been buying in the gray, during the years of volume selling and fair profits. Since the depression set in they established a small, modern mill, the mechanical management of which has been in charge of the manufacturer from whom the stores for years had bought in the gray. The chain store concern's mill has been idle a large part of this year, described in the trade as "a millstone about the neck of the merchant". It was found that as the chain had to meet the receding prices of single unit shops which had sprung up almost in a twinkling, it became expedient to again buy hosiery for the stores and close the mill. The mill overhead cost—or a large part of it—remains, to be met out of the profits from sales in the chain stores.

Around ten years ago the Dexdale Hosiery Mills, Lansdale, Pa., established an attractive retail store in the shopping district of Philadelphia. It was managed by an experienced buyer brought from a leading hosiery shop in New York, and for a time proved so satisfactory that a similar store was established by the Dexdale company in a shopping district in New York. Both retail stores were discontinued a few years later. When again, if ever, there shall be a scarcity of desirable hosiery, a few retail shops may be established by manufacturers, but probably not by any who has had that experience, and it is equally doubtful that many retailers will undertake to manufacture hosiery for their own stores.

A few jobbers have made a success of owning, operating or controlling the production of full-fashioned hosiery mills, but even the success of these few seems to be not attracting others to the mixing of manufacturing and distributing.

Underwear Jobbers in Position to Profit Substantially on Early Contracts

Seasonal spot business in summer weight underwear is moving along in the primary markets at a fairly good pace as relates to volume, but orders are reported much on the hand-to-mouth basis. Otherwise, conditions in the markets for light weights are fair to good, as described by manufacturing interests. From the viewpoint of some of the leading wholesale distributors, retailers buy only to keep their lines assorted as to size, being disposed to not anticipate.

Retailer explanation a few weeks ago of the extreme conservatism in purchases of seasonal underwear was laid to weather, the old-time friend of merchants in search of a goat when they feel things are not going just right with them. In this instance, retailers in interior communities say they did not have their normal spring sales, while in the metropolitan areas, where there ordinarily seems more bustle and "shopping", whether in the stores or through the windows, there has been a somewhat livelier situation.

Trading in underwear this year seems to be running in cycles within a cycle, brisk and slack by turns. Last month a relatively slow market was not wholly

the fault of buyers, for numbers of mills were not pushing for sales, this applying more specifically to women's medium weight and men's heavy weight cottons. Commenting on the situation from the manufacturer standpoint, the sales manager for well known interests said his company has taken the position that if higher prices are made necessary by further rise in yarns and "we have the promised boom, we will be able to get all the business we shall need, while if, for unforeseen reasons, leaks develop in the program for a general revival, we might regret that we booked much fall business in the springtime. Of course we are ready to sell now at advances commensurate with the higher cost of production, but as the trade seems unwilling to concede the right to make such revisions, we are not trying very hard to force the issue. This year, we believe, manufacturers as a class are going to leave it to their trade to do the speculating involved in deferred buying at a time when, we believe, prices are lower than they can be a few months later."

There appears some little confusion in the men's heavy weight underwear trade. Manufacturers are credited with having sold rather heavily before withdrawing their lines or advancing their prices some weeks ago. But, it is stated in trade circles, some few mills did neither, although recently not waging a sales campaign, so that, whether or not action in relation to prices is universal, there is heard no complaint of embarrassing competition, and jobbers appear more confused over the situation than are manufacturers. Their position between mill and retailer, it is maintained, must be viewed from the two angles of buyer and seller.

"We contracted at opening prices for the big end of our requirements," says the underwear manager for a widely known jobbing house who is a frequent visitor to the New York wholesale underwear markets. "To that extent we speculated on the future, as we feel wholesalers and retailers might be justified in doing. But our customers are against paying advances over the prices they last paid us, and, having gathered this expression of their attitude through our salesmen, we are not now offering them fall underwear. We do not know what prices will be when we come to repeat. There's no telling now what the tax on cotton will be nor how much sales are to be taxed. We have no idea of prices declining, and regard this as the first time in many years when we took our present stand in a rising market—I should say, very strong indications of a further rise, for there already have been advances in numbers of cotton goods. If we did not look for still higher prices we might not be holding on to what we already have bought."

The next upward revision by manufacturers may be quite drastic, it is pointed out, there being obviously as much uncertainty among mill heads over near future costs of cotton manufactures as appears to exist among jobbers, and manufacturers being the first to feel whatever immediate effect may result from the operations of the program provided for in Federal legislation pending and quite recently enacted, are expected to concentrate on action for co-operating in the program of President Roosevelt for betterment in industry, of which the textile divisions perhaps are most in need.

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REVIEW OF THE YARN MARKET

Philadelphia, Pa., May 18, 1933.

IF the substantial boom in the market for cotton yarns may be accepted as an index of conditions in the cotton goods trades, yarn consuming manufacturers either are booking more orders or have confidence that conditions in their respective industries are, at least, at the beginning of a profitable upward swing.

The higher prices for yarns which were established in May were accompanied by a fast increasing disposition to cover liberally for prospective business, unless, as some spinners suspect, there has been speculative buying. Whatever the inspiration for freer trading, it was noted that advancing prices not only did not retard buying, but served to stimulate action. And demand seemed to increase somewhat, rather than slacken, when first the peak prices for carded to the middle of May were being quoted. It was then that spinners were standing pat on their quotation, their declination of lower offers often being accompanied by the comment, "There will be someone to buy whether you buy or not." This was, in effect, the retort received by several local houses when transmitting the offers of customers seeking to underbuy the market.

Among the spinners selling direct, one reports business through the Philadelphia office in the first half of May four times the volume for the entire month of May last year, and the office had a 100 per cent increase in April this year over the corresponding month of 1932. These figures deal mainly with knitting yarns entering largely into underwear.

When carded yarn prices in Philadelphia registered an advance of around 40 per cent from the low —that is, assuming that some sales were being consummated at less than 17 cents while 18 was being quoted—buyers for consumption were prone to "take account of stock" before making commitments in such volume as many had been making when 10s single carded cones were available at around 15 cents, and it was in the minds of some sellers that a tapering in volume of business might follow, with prices holding firm in the event cotton lost none of the ground it had gained.

The reports of the Philadelphia cotton yarn trade of brisk selling of carded yarns since the beginning of May conform to information compiled as to the production and sales by spinners as a body. Sales, according to trustworthy trade reports, reached a volume of 7,000,000 pounds a week during May, as compared with 3,800,000 pounds in April, 2,400,000 pounds in March and an average of 1,700,000 in January and February. Another interesting comparison relates to stage of production, spinners last month being reported operating 56 per cent of capacity, while in May 1929 they speeded up to 88 per cent. It was estimated about the middle of last month that at the then basis of production, 13 weeks would be required for filling the unfilled orders. An explanation for the relatively light production is that spinners realize some of the orders may not stick, and that as the yarn trade suffered long from oversupplied markets, it is especially appropriate to hold output down now.

The bulk of the carded yarn movement covered in the foregoing figures was of knitting numbers. Coarse counts for the weaving trade have been in substantially increasing sale, and the plush trade is buying more freely.

While combed yarns have been accorded a better market, the increase in prices from the low is around but 25 per cent, making comparison on 38s single, quoted 32-34 cents, sales being made at 31.

Prices for mercerized yarns continue indefinite, although mercerizers in May were, mostly, quoting on the basis of 55 cents for 60s 2-ply, a previous range being 52-5.

Philadelphia prices published May 17th follow:

Single Skeins

4s to 8	16½	10s	17
12s	17½	14s	18
16s	18½	20s	19½
24s	21	26s	22
30s	23		

Single Warps

10s	17½	12s	18
14s	18½	16s	19
20s	20	26s	22½
30s	23½		

2-ply Skeins

8s	16½	10s	17½
12s	18	14s	18½
16s	19	20s	20
24s	21½	26s	22½
30s	23½	40s	28½

Two-Ply Warps

10s	18	12s	18½
14s	19	16s	19½
20s	20½	24s	22
26s	23	30s	24
40s	29		

Frame Spun Carded Cones

8s	17½	10s	18
12s	18½	14s	19
16s	19½	18s	20
20s	20½	22s	21
24s	22	26s	23
30s	24	40s	30
30s double carded			24
30s tying-in			22

Carpet Yarns

8s and 9s white warp twist	17
8s tinged tubes	16
8s part waste	15

Two-Ply Combed Peeler Skeins and Warps

8s to 16s	24	20s	25
24s	26	30s	29½
40s	34½	50s	40½
60s	45½	70s	56½
80s	66½		

Single Combed Peeler-Yarns on Cones

10s	24	14s	25
16s	25½	18s	26
20s	26½	24s	27½
30s	30½	36s	33
38s	35	40s	36
50s	40	60s	45
70s	55	80s	65

Mule Spun Carded Yarn on Cones

10s	23	12s	23½
14s	24	16s	24½
18s	25	20s	25½
24s	26½	28s	27½
30s	28½	40s	34½

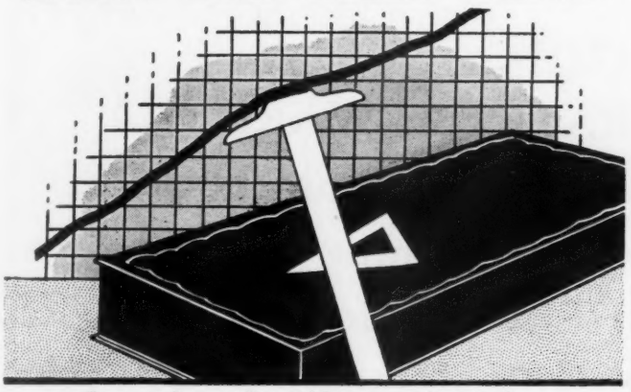
Mule Spun Combed Peeler Yarn on Cones

10s	29½	12s	30
14s	30½	16s	31
18s	31½	20s	32
22s	33	26s	34
28s	35	30s	36
36s	38½	38s	40½
40s	41		

Tinged Insulating Yarns

8s	15	8s-2	15½
10s-1	16	10s-2	16
12s-1	16½	12s-2	16½
		20s-2	18½

Boost Your Sales Curve



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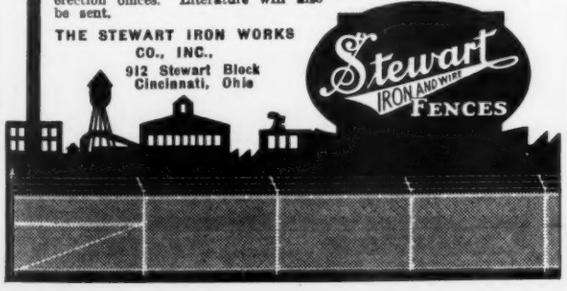

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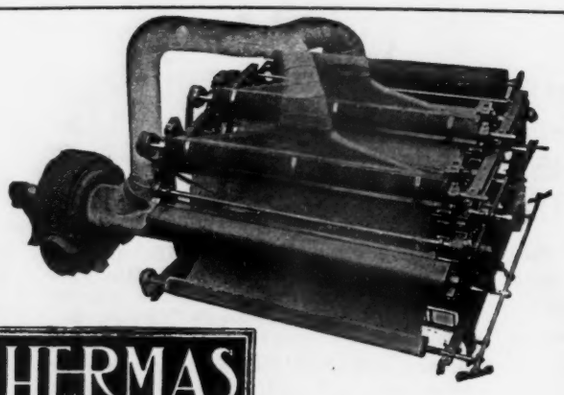

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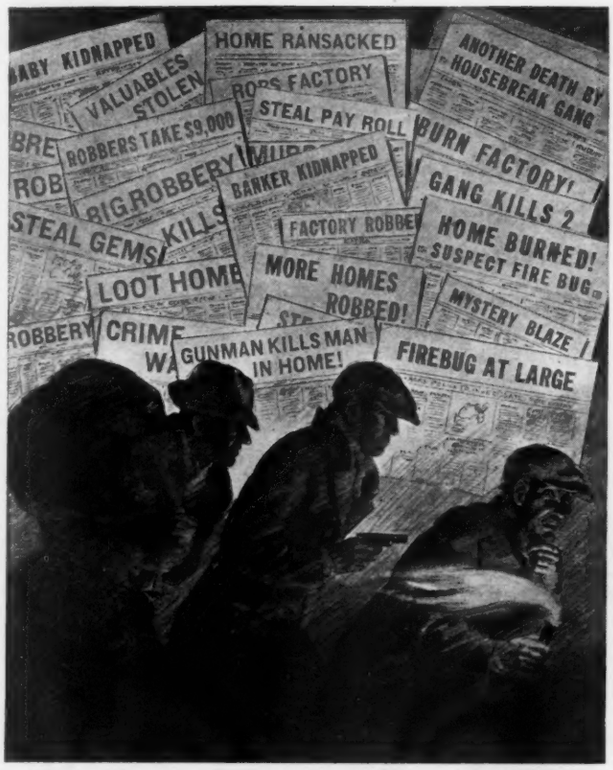

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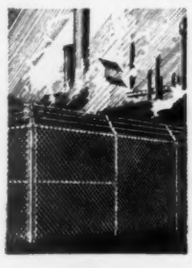

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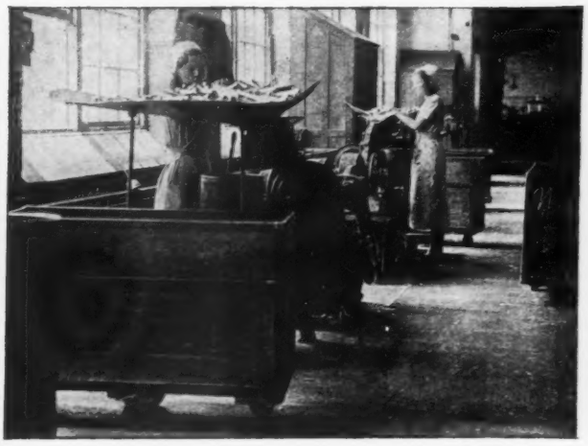

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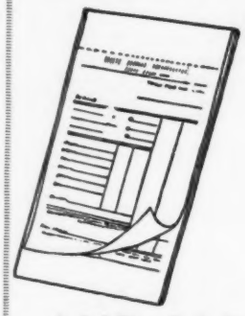

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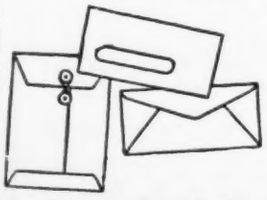

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SPINNING SPINDLE WHORLS RE-CUT
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DRAWING ROLLS RE-COLLARED

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Factory and Dwelling Real Estate
Machinery and Equipment of
The Tire Fabric Plant of

THE FISK RUBBER CO.

JEWETT CITY, CONN.

THURSDAY, JUNE 22, 1933, AT 10 A. M.

DAYLIGHT TIME, ON THE PREMISES

REAL ESTATE WITH WATER RIGHTS (in one parcel):—The Mill Real Estate comprises a group of Mill Construction Brick Buildings, having an aggregate of about 200,000 square feet of Floor Space, with elevators, wash rooms, steam heat, sprinkler system, etc. The water power develops about 800 Horse Power through two Twin Holyoke Type C Wheels. This plant will lend itself readily to light or heavy manufacturing usage. It has its own Railroad Siding, about 750 feet long, with loading platforms to permit loading several cars simultaneously, and is served by the New York, New Haven and Hartford Railroad. Overnight Railroad and Trucking service to New York.

MACHINERY AND EQUIPMENT (in separate lots):—4 Barber-Colman Automatic Spoolers and High Speed Warpers, Barber-Colman Tailing Machine, 170 Whitin 40" Revolving Flat Cards, 4 Saco-Lowell One Process Pickers; Bale Breakers and Openers, 40 Whitin Twisters, 41 H. and B. Twisters and Cablers; 122 Whitin Spinning Frames, 6 Woonsocket Slubbers, 18 Woonsocket Intermediates, 30 Woonsocket and Saco-Lowell Roving Frames; 4 Foster Cone Winders No. 23, Combers, Drawing Frames, Banding Machine, Universal Winders, Yarn Scale, Testers, Roving Cans, etc.; Machine Tools and Equipment, including 2 Ingersoll-Rand Duplex Air Compressors, Lathes, Drill Presses, Milling Machine, Planers, Grinders, Saw Tables, Small Tools, Shafting, Belting, Scales, Blacksmith Shop, Office Equipment. 3000 H. P. of Motors, General Electric, Westinghouse, Allis-Chalmers; 1 to 50 H. P.; G. E. Compensators.

A considerable portion of the machinery in this plant, including Cards, Twisters, Winders, Barber-Colman Units and Motors, was purchased new in 1926 and 1928, and has been operated from 2 to 4 years only.

NOTE: On Wednesday, June 21, 1933, at 10 A. M. (D. S. T.)
We will sell 48 Dwellings and certain parcels of unimproved land pertaining to the above Mill—circular on request.

ALSO—On Friday, June 23, 1933, at 2 P. M. (D. S. T.)
We will sell the Real Estate of the Westerly Plant of the Company, including two Mill Properties and a six-family tenement. Circular on request.

By order of Fisk Realty Corporation.

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Boston

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WITH S-W MATERIALS!

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